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THE CORRELATES OF READING UNDERACHIEVEMENT OF JUNIOR HIGH SCHOOL READING UNDERACHIEVERS

by

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies for acceptance, a thesis entitled "The Correlates of Reading Underachievement of Junior High School Reading Underachievers," submitted by Emily Mee-Lee Lee in partial fulfillment of the requirements for the degree of Master of Education.

ABSTRACT

The study investigated the interrelationship of the reading abilities of three groups of reading underachievers, and related their reading abilities to reading aptitudes and academic achievement.

Subjects were selected from a junior high school in the city, through a preliminary selection and a final selection. Group intelligence test scores and group reading scores were used in the preliminary selection, and individual intelligence test scores, individual and group reading test scores were used in the final selection. The reading tests consisted of a silent reading test, an oral reading test, and a test measuring various complex comprehension abilities. The final selection yielded three groups of reading underachievers. They were the Silent Reading Underachievers, the Oral Reading Underachievers and the Underachievers in Silent Comprehension Abilities.

Reading aptitude tests and subject achievement tests were administered by the investigator, with assistance from the teachers of the school, to the experimental subjects.

Statistical correlation revealed that there is significant relationship between the reading abilities. But the relationship does not seem to be always consistent, and varies with the type of reading ability and the group of underachievers considered. Reading underachievement has been found to be a subtle problem.

Significant relationship was found between reading underachievement and poor visual memory, poor auditory memory and

poor auditory discrimination. Poor visual-muscular coordination was found to bear a significant relationship to underachievement in oral reading comprehension and underachievement in silent reading comprehension. Relationship between silent reading abilities and the auditory ability to discriminate sounds also appeared to be significant and consistent. Reading underachievement seems to be related not to educational factors alone, and silent reading abilities not to visual aptitudes alone.

Previous studies have indicated a close relationship between reading abilities and academic achievement. In this investigation the measurement of reading abilities of junior high school students in terms of silent reading speed, silent reading vocabulary and silent reading comprehension as measured by the Gates Reading Survey Tests did not appear subtle enough to detect this relationship. The measurement of reading abilities at Grades VII, VIII and IX in terms of various complex comprehension abilities as assessed by the Van Wagenen Analytical Reading Scales was found to bear a closer relationship with academic achievement than the Gates test.

Those subjects who underachieved in one or more than one of the complex reading comprehension skills of deriving the main ideas, noticing simple details, drawing inferences, comprehending related ideas and interpreting the author's intent, were found likely to be limited in their general academic achievement as measured by achievement test. The ability to interpret was

found to be the most complex of the comprehension abilities and the most closely related to achievement in English, social studies, as well as achievement in science and mathematics.

It was suggested that periodic testing of visual, auditory, and motor aptitudes of school children be conducted from the early grades, so as to determine the function of maturation and training in these aptitudes.

On the significant relationships found between reading abilities and academic achievement in this investigation, it was recommended that they be further investigated, analysed and verified.

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CHAPTER I

THE PROBLEM

In our schools we are becoming increasingly aware of the existence of academic underachievement, and with it, reading underachievement. Teachers and research workers have tried to assess the problem and to investigate its correlates. Attempts have been made to delimit the specific area of reading difficulty, to explore the possible involvement of other reading areas, the impact reading underachievement might have on general curriculum achievement, and physical or psychological characteristics that might accompany it. Concern is felt in all grades, and particularly in the junior high school level, for here is the transitional stage where individual reading patterns and reading habits are growing, emerging, and academic pressure increasing, and where students are expected to be versatile, flexible, resourceful, capable of using their reading skills as an efficient and effective study tool.

The purpose of the study is to investigate the correlates of reading underachievement, through evaluation of performances of three groups of reading underachievers: Oral Reading Underachievers, Silent Reading Underachievers, and Comprehension Abilities Underachievers, in a junior high school population. In each of these underachieving groups, inter-relationships of reading abilities, relationships of reading abilities to reading aptitudes, and relationships of reading abilities to achievement in major curriculum areas are investigated.

NEED FOR THE STUDY

Many studies which deal with specific reading abilities and reading retardation have been reviewed. They have been found to be precise, but also fragmentary, often dealing with one single area. The concept of underachievement, as defined in this study, was seldom introduced in the earlier investigations. And in the later studies that investigated underachievement, the experimental subjects were often grouped by such general terms as "retarded readers," or "poor readers." It seems that efforts were seldom made to delimit the specific area or areas of reading underachievement among these subjects, or to relate their abilities in these underachieving areas to other factors. Their findings on inter-relationships of reading abilities do not appear to be conclusive. Recent interest in the relationship between auditory and perceptual patterns and reading abilities yielded some exemplary research efforts, such as that by Reid (1962) and Bradshaw (1963). But the former was concerned with reading readiness and the latter lacked statistical treatment. Chabassol's study (1959) on correlates of academic underachievement in male adolescents was also a clinical study. As for investigations on the relationships existing between reading underachievement and academic achievement, Bond's study (1938) on reading and ninth grade achievement was comprehensive and illuminating. Similar investigations at other grade levels appear to be needed.

Consequently the presently study is designed to investigate various reading abilities and their correlates, among differing groups of reading underachievers, in a junior high school population, where acquisition and development of reading skills, as discussed previously, are of great significance.

STATEMENT OF SUB-PROBLEMS

This study will attempt to answer the following questions:

1. Are reading abilities closely inter-related among reading underachievers? Does underachievement in one area co-exist with underachievement in another area?

2. Is the measurement of reading aptitudes, a diagnostic tool so often used, a valid measurement? Do reading aptitudes correlate with reading achievement among reading underachievers?

3. If a reading aptitude or aptitudes are found to correlate with achievement in a reading ability among reading underachievers, is there any structural similarity between this aptitude or aptitudes and the reading ability concerned?

4. Does reading achievement correlate with curriculum achievement among reading underachievers?

5. If achievement in certain reading areas does correlate with certain subject achievement, is there any structural similarity between the reading area and the subject area concerned?

6. Do oral reading achievement, and silent reading achievement, and to a certain extent various complex comprehension abilities, form similar patterns of association with reading aptitudes? Do they form

similar patterns of association with curriculum achievement?

DEFINITION OF TERMS

Reading areas are the areas tested by the various reading tests, namely vocabulary, speed, comprehension in silent reading; speed, accuracy, comprehension in oral reading; ability to derive main ideas, notice simple details, comprehend related ideas, draw inferences, make interpretation, in silent comprehension.

A reading underachiever is a subject whose performance in one of the reading areas mentioned above is one or more than one year below his capacity level as measured by the Wechsler Intelligence Scale for Children.

Silent Speed Underachievers, Silent Vocabulary Underachievers, Silent Comprehension Underachievers are subjects who underachieve in speed, vocabulary, comprehension respectively, in the silent reading test of the Gates Reading Survey. They are all Silent Reading Underachievers.

Oral Speed Underachievers, Oral Accuracy Underachievers, Oral Comprehension Underachievers are subjects who underachieve in speed, accuracy, comprehension abilities respectively in the oral reading test of Neale Analysis of Reading Ability. They are all Oral Reading Underachievers.

Central Thought Underachievers, Simple Details Underachievers, Related Ideas Underachievers, Inferences Underachievers and Interpretation Underachievers are subjects who underachieve in central thought, simple details, related ideas, inferences,

interpretation abilities respectively in the Van Wagenen Analytical Reading Scales which measures complex silent comprehension abilities. They are all Silent Comprehension Abilities Underachievers.

Underachieving reading ability or area of underachievement means the reading ability in which the group underachieves, for example, oral reading speed among oral reading speed underachievers. It is noted that some individuals in the group may underachieve in another ability.

Reading aptitudes are visual letter memory, visual form memory, auditory letter memory, auditory orientation-and-discrimination, motor copying-text, motor cross-out-letters, as measured by the Monroe-Sherman Reading Aptitude Tests.

Curriculum achievement is achievement in the major subjects as measured by the Cooperative Achievement Test Battery for Junior High Schools. The subjects measured are mathematics, science, social studies, and English.

Correlates of reading underachievement means any area of aptitude or achievement that is found in this investigation to co-exist with underachievement in a reading area. No cause and effect relationship is implied.

HYPOTHESES

The following hypotheses will be tested in this study:

1. There is no significant relationship between the silent reading abilities of speed, vocabulary and comprehension, among the Silent Reading Underachievers.

2. There is no significant relationship between the underachieving reading ability and the reading aptitudes, among the Silent Reading Underachievers.

3. There is no significant relationship between the underachieving reading ability and achievement in English, social studies, science and mathematics, among the Silent Reading Underachievers.

4. There is no significant relationship between the oral reading abilities of speed, accuracy and comprehension, among the Oral Reading Underachievers.

5. There is no significant relationship between the underachieving reading ability and the reading aptitudes, among the Oral Reading Underachievers.

6. There is no significant relationship between the underachieving reading ability and achievement in English, social studies, science and mathematics, among the Oral Reading Underachievers.

7. There is no significant relationship between the complex comprehension abilities of central thought, simple details, related ideas, inferences and interpretation, among the Comprehension Abilities Underachievers.

8. There is no significant relationship between the underachieving reading ability and the reading aptitudes, among the Comprehension Abilities Underachievers.

9. There is no significant relationship between the underachieving reading ability and achievement in English, social studies, science and mathematics, among the Comprehension Abilities Underachievers.

ORGANIZATION OF THE EXPERIMENTAL STUDY

In this study emphasis is placed on the study of reading underachievement at the junior high school level. It will investigate the inter-relationships of reading abilities among reading underachievers, relationship of reading underachievement to performance in various reading aptitudes, and relationship of reading underachievement to achievement in academic subjects.

It is proposed to conduct the investigation in a junior high school located in a community of middle or lower middle social-economic status. The school population is to be over a hundred so that it might yield a sufficient number of reading underachievers for the investigation. Selection of reading underachievers will consist of a preliminary selection, based on group tests, and a final selection, based on group and individual tests. The tests to be used for the preliminary selection will consist of a reading survey test and a group intelligence test. If intelligence tests have been administered by the school, the test scores will be used, provided the tests are appropriate.

Reading abilities measured in the final selection will be silent reading speed, silent reading vocabulary and silent comprehension, oral reading speed, oral reading accuracy and oral comprehension, and five complex comprehension skills. Underachievers will be selected on the basis of discrepancy between expectancy level as indicated by the intelligence test, and the particular reading score. A discrepancy of one year or over will be regarded as an underachievement.

At the final selection underachievers may be analyzed in terms of the various reading areas measured. They also may be broadly classified as silent reading underachievers, oral reading underachievers, and comprehension abilities underachievers. The underachieving groups are not mutually exclusive, as an individual subject may underachieve in more than one of the reading abilities measured.

Once the reading underachievers are located, reading aptitude tests and subject achievement tests will be administered. Results will be subjected to statistical treatment. In each group of underachievers, the underachieving reading ability will be studied in relation to other reading abilities of the same type, for example, silent reading speed with silent vocabulary and silent comprehension. The underachieving reading ability of the group will also be studied in relation to the reading aptitude scores and to the subject achievement scores of the group.

All individual tests will be administered by the investigator. Administration of group tests will be shared between the investigator and teachers of the school. Results will be collected, organized and analyzed by the investigator. Computation will be done at the University Computing Centre but checked by the investigator.

ASSUMPTIONS

The investigation is based on certain assumptions. Intelligence as measured by intelligence tests is assumed to be a potentiality, and under normal conditions, a student could be expected to achieve at the level so indicated.

The second assumption is that reading underachievement is not a general situation. A student may underachieve in one ability and achieve in another reading ability.

LIMITATIONS OF THE STUDY

The method used for this study has certain limitations.

1. As underachievement is the area of investigation, no achievers are to be included.

2. Control of possible physical disabilities and mental retardation among the subjects is not incorporated into the experimental design.

3. Correlates of reading underachievement are numerous. In the present investigation only such correlates as inter-relationships of reading abilities, association between reading underachievement and reading aptitudes, association between reading underachievement and curriculum achievement will be studied.

4. No attempt will be made to select mutually exclusive groups of reading underachievers, as this would not serve the purpose of studying inter-relationships of reading abilities among reading underachievers. In order to reduce possible biases, only the underachieving reading ability in each group of underachievers will be studied in relation to remaining reading abilities of its own type, to reading aptitudes, and to subject achievement.

5. No attempt will be made to investigate the inter-relationships between abilities of one type and another type. Silent reading abilities will not be studied in relation to oral reading abilities or to complex comprehension abilities and vice versa.

SIGNIFICANCE OF THE STUDY

It is hoped that as a result of the investigation, more may be known about reading underachievement at the junior high level. It is also hoped that more may be known about inter-relationships of reading abilities among reading underachievers, and whether underachievement in one reading ability is associated with limitation in another reading ability. It is also hoped that more insight, based on statistical evidence, may be gained about different aptitudes or inaptitudes that may accompany different types of reading underachievement. Again it is hoped that the study may provide some substantial evidence as to whether reading underachievement is associated with limitation in general academic achievement, and in what subject area.

The study will be specific rather than comprehensive. It is possible that certain conclusions and implications drawn from the study will result in a contribution to the teaching or research of reading at the junior high school level.

CHAPTER II

THE REVIEW OF RELATED RESEARCH

A review of literature reveals that the concept of underachievement,begun early in the century has gradually evolved. The concept of reading underachievement too has been gradually refined. The following presentation of related studies attempts to trace the development of the concept of underachievement in general and reading underachievement in particular. Studies concerned with the correlates of reading underachievement, in the areas of inter-relationships of reading abilities, memory span, auditory discrimination, kinaesthetic ability and academic achievement will also be reviewed.

THE CONCEPT OF UNDERACHIEVEMENT

As this study is concerned with reading underachievement and its correlates, it is based on the assumption that underachievement is a valid concept.

As early as 1922, Stone converted the Otis intelligence scores and the average achievement of his population into percentiles and designated the discrepancy between the two scores as an underachievement. Since then other studies have followed. Schonell (1942) in his study Backwardness in the Basic Subjects selected his population on the basis of a discrepancy, measured in age scores, between general intelligence level and achievement in the subject area concerned. And he based his investigation on the following concept:

> Retardation is a state of improvable deficiency and as such may characterize dull, normal or supernormal pupils (1942, p. 61).

This concept of underachievement as an "improvable deficiency," of a discrepancy between the expected and the actual, has since been the underlying assumption of most of the research on underachievement, though methods in the estimation of degree of underachievement, and in the selection of subjects vary. These later investigations include a study by Griffiths (1945) on college underachievers. Griffiths compared the achievement of his university population, measured by points, with their hours of course work. The intelligence of the students was not actually measured, but the point-hour ratio was likely based on the assumption that these students had the capacity to achieve.

Barrett (1957) in his study selected one underachiever from each classroom. The criteria were that the subject should earn an I.Q. of more than 130 on the Henmon-Nelson and should come closest to the bottom of his class in achievement.

Chapman (1958) in a study of achievement and underachievement in an English language course in a composite high school, again used intelligence scores to indicate level of expectancy. Achievement in the English course was converted into an achievement index, performance in the Dominion Group Test of Learning Capacity into a mental capacity index, and the two yielded an achievement quotient which was the criterion for selection of achievers and underachievers.

Chabassol (1958) in a massive clinical study of correlates of academic underachievement in male adolescents, utilized the School and College Ability Tests. The mean of subject achievement scores in stanines was divided by the SCAT percentile score to

produce an underachievement index, and with which he selected his underachievers.

In 1960, Seaman based his study of underachievers on students enrolled in the first year of education. He also used the SCAT and compared the ability test score with grade averages, and a deviation of .5 or more in standard score was used as a criterion.

In all these investigations, intelligence was assumed as a measurement of expectancy, and should the subject's level of academic attainment be below the level so indicated, it was accepted as an underachievement, and as Schonell stated, an "improvable deficiency" (1942, p. 61).

However this concept of underachievement has been subject to challenge in recent years. Some have argued that mental capacity, due to environmental factors, is never fully realized. And so in a sense we are all underachievers, and the distinction between achievers and underachievers is futile. Pidgeon (1961) actually questioned the assumption that intelligence scores indicate the upper limit of achievement, though he did not question the theory that intelligence 'per se' is the uppermost limit:

> Theoretically there may be an upper limit to the possible score that could be achieved by any child on any test, but this limit is unknown... It must be realized that an intelligence test score no more estimates maximum potential than does an attainment test score; both are subject to the influence of factors likely systematically to depress them below a theoretical maximum (1961, p. 42).

Among the counter statements was a reply by Levy (1963). He admitted that it is true that children are in general educationally retarded, but he also stressed that it is because our experiments

are in the real world of education, and not in the theoretical or ideal world. And if the estimate of intelligence is depressed by environment below the ideal level, so is the normative data, with which we construct attainment ages, depressed by the environment below the ideal scholastic achievement level. And as norms correspond to what we can expect from the real children's achievement, there is no fallacy in reasoning if we compare an achievement score with mental age, and call a discrepancy underachievement:

> We can consider that an intelligence test score is a short term estimate of how well a child is likely to perform new tasks. There is no need to regard this score as representing an accurate measurement of innate general ability alone, nor indeed need we regard it as anything but influenced by environmental factors (1963, p. 144).

THE CONCEPT OF READING UNDERACHIEVEMENT

At the end of the last century, and the beginning of the present, when interest in reading was first aroused, reading was regarded in some circles as a simple process. Buswell (1937) in How Adults Read represented the point of view that psychologically reading is a relatively simple process which can be learned in the elementary school, and the basic factors in the process merely include span of recognition, speed of perception and suppression of vocalization. Buswell even discarded remedial measures as being unnecessary:

> There is evidence to indicate that systems of remedial instruction are becoming so complicated and detailed that they present an impossible obstacle to the improvement of reading (1937, p. 144).

Thorndike (1934) held the opposite view. To Thorndike, reading a paragraph is like solving a problem, and it is an intricate process, consisting of ability to use knowledge of words and constructions, and to understand sentences and paragraphs. The limits of this ability, according to Thorndike, are set by intelligence. Some individuals therefore will learn to read without much training, and others will never be able to read well. And to those with good intelligence, Thorndike believed that the stimulation of life in general and the school studies other than reading will bring nearly to a maximum a given child's ability to read. To Thorndike therefore there is no reading underachievement.

Bond (1938) in her study of reading and ninth grade achievement, represented a third school. She believed that reading is a continuous process, tremendously important and complex. The basic skills can be learned in the elementary school, but on the other hand there is an increasing need to acquire new skills, and to improve on existing skills at every level of school life. The uppermost limit to these skills is set by intelligence, she admitted, but a child does not just acquire the skills, as Thorndike (1934) had suggested, without specific instruction. And failure to acquire these skills ultimately constitutes an underachievement in reading.

Most of the present day investigations on reading underachievement conform to this last school of thought. The underlying assumption of underachievement in most cases is similar to that

stated by Bond, though research techniques might differ. And some of these investigations study composite reading underachievement, some in specific reading underachievement, and some a combination of the composite and the specific.

Reed and Pepper (1957) in an investigation of interrelationships of reading abilities defined reading disability as a disparity between different reading abilities measured. Three tests, one measuring rate, one measuring vocabulary, and one measuring comprehension, were administered to their college population. Local norms in percentiles were established. An achievement in any of the three abilities of eightieth percentile or higher was regarded as a high score, and an achievement of twentieth percentile or lower, a low score. A student with a high percentile in one of the three areas and a low percentile in any of the two remaining areas was regarded as a reading disability case. This research study was indeed an investigation of specific underachievement to a very fine degree.

Walters and Kosowski (1963) in a study of symbolic learning and reading retardation, selected subjects from Grades VI, VII and VIII boys from one single suburban school. Average reading grade from Gates Reading Survey was used and compared with mental age as measured by Dominion Group Test. And z' scores were computed for each of the two tests for each grade. A discrepancy of .5 z' scores was accepted as an underachievement. This investigation was an example of using a total composite silent reading score to

compute the degree of underachievement.

In 1963 Alwitt, in investigating the decay of immediate memory among non-readers and readers, selected her children from Grades I to VI. WISC scores and Gilmore Oral Reading scores were converted into grade scores, and a discrepancy of 1.5 was accepted as an underachievement. This was an investigation in which a total composite oral reading score was used to compute reading underachievement.

Carroll and Austin (1957), as reported in Appraisal Techniques for School and Classroom, conducted a most elaborate study on causes and effect of underachievement in reading, known as the Newton Study. In the investigation children from Grades I, III, VI and IX were tested. A different reading test was used for each grade, due to the different levels of maturity in reading. A formula was constructed to compute a "relative achievement score." A child who achieved at the level predicted from his mental ability received a score of 5.0 by this formula, and those underachieving received a score of 4.0 or less. The investigators then proceeded to classify subjects as bright underachievers and retarded underachievers. This study was also an example of using one single reading score to calculate underachievement, but with this difference. There was an attempted adjustment to the varying levels of development in the various grades.

Stevenson reported in the Clinical Studies in Reading I (1949) a well designed clinical study on retarded readers, conducted by the staff of the reading clinics of the Chicago University. In the

investigation a reading index was established by considering the Metropolitan Achievement Test in relation to mental capacity, chronological age, and achievement in arithmetic. Therefore in this study, reading achievement was compared not only to mental capacity as in the studies previously mentioned, but also to other factors.

In 1964 Sandstedt departed to a certain extent from the practices described above in a study on the relationship between memory span and intelligence of severely retarded readers. She defined retarded readers as those having discrepancies of two or more years between expected reading levels, derived from a listening capacity test, and actual reading levels, as measured by an informal reading inventory. In this investigation the listening capacity test replaced the standardized intelligence test as an estimate of mental capacity, and the informal reading inventory replaced the standardized reading tests.

The recent dates of some of these research studies have indeed emphasized the new interest in the research of reading underachievement and its correlates.

THE INTERRELATIONSHIP OF READING ABILITIES AMONG READING UNDERACHIEVERS

In the investigation conducted by the reading clinics of the University of Chicago, mentioned previously, thirty-eight reading underachievers were selected from Grades II to VI of the university laboratory school, and its method of selection has

been reviewed in the previous section. The performances of the subjects in the Chicago Reading Tests, which measured comprehension of words, sentences, stories, maps, graphs and rate of reading, were analyzed. The subjects were then classified into broad classifications as those deficient in word recognition, those deficient in comprehension, those deficient in reading rate, and those deficient in all areas. Each of the thirty-eight subjects was found to show a unique pattern of reading abilities. However certain broad generalizations could be made. Those who were deficient in word recognition were handicapped in all reading activities. Those deficient in comprehension, however, could recognize words satisfactorily. And those deficient in reading rate were handicapped in competition with their classmates in both word recognition and comprehension.

A more sophisticated approach was used in a later study. In 1957 Reed and Pepper, whose concept of reading disability has been discussed in the previous section of the chapter, conducted their research under the assumption that there are three major components in reading, namely a vocabulary component, a component involving comprehension of factual material, and one of speed of comprehension. They found that this division of reading abilities was supported by studies on normal population, but similar studies were not done at the college level and among those with reading problems. And to a college population the two investigators administered a speed test, a timed vocabulary test, and a timed comprehension test. Three combinations were then devised, in which speed and vocabulary were paired, vocabulary and comprehension

were paired, comprehension and speed were paired. For each combination four groups of subjects were selected. They were the high-high, low-low, high-low and low-high groups. The investigators found that scores on the vocabulary test were affected by rate. Comprehension was found to be related only to vocabulary, and time element did not seem to matter very much. The most subtle of the abilities was rate. It appeared to be highly related to vocabulary and comprehension. Reed and Pepper suggested that perhaps the most important variables governing speed of reading, instead of lying in the perceptual domain, can be accounted for in the domain of concept formation, organization, and knowledge of vocabulary.

There are many studies on inter-relationships of reading abilities among reading achievers, but few have been found to be concerned with reading underachievers, and as well designed as those discussed above.

THE RELATIONSHIP BETWEEN VISUAL AND AUDITORY MEMORY SPAN AND READING RETARDATION

Rizzo (1939) was one of the first to investigate visual and auditory memory span with special reference to reading disability. His subjects consisted of three hundred and ten children from eight grade levels, divided into a control and an experimental group. Using nine letters of the alphabet in nonsense order, he constructed three memory span tests. In his first analysis, scores of all the subjects on the memory span tests were compared with

scores on silent reading tests. The correlation was found to be significant, but at a low level of relationship. But when a comparison was made between good and poor readers in terms of group mean scores on the memory span tests, the scores of the good readers in each of the tests exceeded that of the poor readers.

In 1948 Stauffer published the results of his investigation on some psychological manifestations of retarded readers. Using the Detroit Tests of Learning Aptitude he found a consistent pattern of memory span among fifty-one severely retarded male readers. The subjects were found to achieve significantly higher scores on non-verbal measures of visual memory span than on verbal measures of auditory memory span. Yet they tended to achieve higher scores with related items presented auditorily than with unrelated items presented visually. They also achieved significantly higher scores with non-verbal than with verbal measures of visual memory span.

In the University of Chicago experiment, mentioned previously, memory span patterns of thirty-eight retarded readers, at Grades II to VI, were investigated with the Monroe-Sherman Reading Aptitude Tests. One third of the cases were found to be deficient in visual form memory, more than two-thirds of the cases in visual letter memory, and eighteen of the subjects

were deficient in auditory letter memory.

By 1963 it was obvious to Alwitt that limited memory span was associated with reading retardation. But he wanted to investigate its possible causes. A study of decay of immediate memory of nineteen non-readers, selected from Grades I to VI, was undertaken. The non-readers were matched in chronological age, though not in sex, with a control group. Decay of immediate memory was measured in an interesting manner. Two rows of eight digits were presented each time. During the first presentation, the children were told to remember the top or bottom row before presentation. During the second presentation, the children were told to remember the top or bottom row after presentation. The scores from the second presentation subtracted from the scores of the first presentation represented the amount of memory decay. In the final analysis, no significant differences were found. Alwitt concluded that "immediate memory traces of reading disability cases do not decay at a faster rate than do those of normal readers" (1963, p. 147). He also concluded that memory decay could not be the cause of the low auditory and visual memory span associated with reading retardation. Other factors, such as inability to attend to the entire stimulus field, or stricter limit to the amount of materials retarded readers could hold, or aphasoid characteristics, might be responsible for the limited memory span.

Two recent investigations were patterned after the earlier research studies. Bradshaw (1963) conducted a very comprehensive clinical study on the perceptual patterns of twenty-three retarded

readers, and in the course of the investigation she also administered the Monroe-Sherman Reading Aptitude Tests. It was found that individuals as well as the group showed a wide range of performances in visual letter memory and visual form memory. The mean performance of the group in visual letter memory was low, and in visual form memory it was close to average range. Mean performance of the group in auditory letter memory was found to be barely average. The findings were not in contradiction with that reported in Clinical Studies in Reading I, but both studies lacked statistical analysis.

Sandstedt (1964) administered the Detroit Tests of Learning Aptitude to retarded readers age eight to thirteen, attending grades II to VII. She found that their total auditory memory span tended to be significantly lower than total visual memory span scores, and her findings supplemented Stauffer's previous conclusions.

The existing research evidence suggests a close association between memory span and reading retardation. However very few studies investigated the association between memory span and specific reading retardation, and very few were conducted at a level above the elementary school.

THE RELATIONSHIP BETWEEN AUDITORY DISCRIMINATION AND READING RETARDATION

Studies relating reading retardation to auditory discrimination seems to be rather limited. Bond (1935) found a significant difference between the poor readers and the good readers, of Grades

II and III, in their auditory discrimination of word sounds.

Wolfe (1941) in her investigation matched two groups of boys, with eighteen subjects in each group. It was found that on tests of acuity, the experimental group was consistently inferior to the control group. The differences however, were not statistically significant except in the test of word discrimination.

Robinson (1946) in an intensive clinical study of thirty reading disability cases, also conducted a tentative survey of their auditory discrimination abilities. She reported that of the twenty-two cases for whom the test results seemed reliable, seven were below expectancy in their ability to discriminate either vowels or consonants. She was hesitant to draw conclusions as she felt the instrument was not standardized, but stressed the need to investigate this relationship further. In 1963 Bradshaw followed this suggestion and found that in her clinical study of perceptual patterns of retarded readers, her subjects showed a low ability in auditory orientation and discrimination.

The investigations seem to suggest that a limited ability in auditory discrimination is likely associated with reading retardation, but due to the limited amount of research evidence, existing findings should be further substantiated.

THE RELATIONSHIP BETWEEN VISUAL-MUSCULAR COORDINATION AND READING RETARDATION

It seems that very few studies have been conducted in this area.

Monroe (1932, p. 99) in her investigation of children who had reading difficulties, noticed a marked disability in the kind of visual-muscular control necessary for reading. Her subjects were found to have difficulty in following the lines of words with the eye or with the finger, and were poor in their writing.

Fernald (1943) on the other hand advocated a kinaesthetic approach to word recognition for retarded readers with severe association problems.

In 1963 Bradshaw found that her experimental subjects were lowest in the test of copying test material, among the six reading aptitudes tested by the _Monroe-Sherman Reading Aptitude Tests_. Yet they scored highest in the test of cross-out letters. It is to be noted that both of these tests measure visual-muscular coordination.

Possibly due to the limited amount of research in this area, evidence is still inconclusive, and further investigation seems necessary.

THE RELATIONSHIP BETWEEN ACADEMIC ACHIEVEMENT AND READING RETARDATION

There is an abundance of research evidence on the relationship between reading ability and academic achievement, but few of the studies relate reading retardation to academic achievement, and even fewer relate specific reading retardation to specific subject achievement.

Bond's study (1938) on the relationship between reading and ninth grade achievement is still an outstanding example. Bond's

good readers and poor readers were controlled with respect to chronological age and mental age. Varying degrees of relationship were found to exist between the several aspects of reading ability and composite ninth grade achievement. Ability in comprehension was found to be a highly significant factor in composite ninth grade achievement. Slow readers were found to be at an advantage rather than disadvantage in composite ninth grade achievement. Varying degrees of relationship were also found to exist between the several aspects of reading and each of the various ninth grade subjects investigated. Achievement in English seemed to be the most closely related to various reading abilities, and science was associated with various aspects of reading comprehension. The relationship of speed of reading to academic achievement was found to be very subtle. A fast rate of reading simple materials was found to be a definite help in enlarging vocabulary and broadening literary acquaintance; and yet a relatively slow rate of reading of simple material was found to be characteristic of high achievement in science, mathematics and Latin. Inability to adjust rate of reading to type of material read was found to be significantly related to limitation in subject achievement in general.

Few studies have been found to be as detailed as this investigation by Bond, and even in this investigation the emphasis was not on specific reading retardation. The relationship between specific subject achievement and specific reading retardation remains a largely unexplored area.

SUMMARY

As seen in the discussion above, the concept of reading underachievement is still growing, being challenged, and evolving. The studies concerned with reading achievement and its correlates are in abundance, but the studies concerned with reading underachievement and its correlates seem limited, especially in the areas of inter-relationship of reading abilities and the association between specific reading underachievement and academic achievement. Research studies on auditory and visual patterns of retarded readers are not few, but those on the auditory and visual patterns of specific types of reading retardation seem rather rare. And evidence on auditory discrimination and visual-muscular abilities of retarded readers remain inconclusive. Further investigations are indeed needed, and should be conducted at other grade levels besides that of the elementary school.

CHAPTER III

THE EXPERIMENTAL DESIGN

This chapter will describe the selection of research population, instruments used, and procedure and treatment of data.

SELECTION OF RESEARCH POPULATION

The study was conducted in a school located in an established, fairly stable community in the lower-middle social-economic group. The school has been in operation since 1949 and has a fairly stable student population. There are two divisions, elementary and junior high, with each situated in a well-defined section of the school building.

The investigation was conducted in the junior high division. It consisted of one Grade VII class of 34 students, two Grade VIII classes, with a total of 46 students, and two Grade IX classes, with a total of 41 students. The total group from which subjects were selected numbered 121.

The Preliminary Selection. Students in the junior high division were administered a group reading test by the investigator. Their results were compared with scores in a group intelligence test. A total of 116 had both administered. Intelligence quotients from these group intelligence tests were converted into mental ages. A student with a total group reading score one year or more than one year below his mental age score was regarded as a potential subject. A total of 49 students qualified. Out of this 49, two dropped out and two were transferred. The preliminary reading underachievers

eventually consisted of 45 students.

Final Selection of Subjects. Each of these 45 preliminary underachievers was administered an individual intelligence test. The results were converted into mental age scores. The student's abilities in silent reading, in oral reading, and in various comprehension skills were further tested, analyzed and compared with mental age scores. This yielded three groups of underachievers: Silent Reading Underachievers, Oral Reading Underachievers and Comprehension Abilities Underachievers. They constituted the final group of underachievers. A detailed description of the selection for each group is given below.

Silent Reading Underachievers. For each of the 45 preliminary underachievers, individual achievement in a silent reading test was analysed into speed, vocabulary and comprehension components. A subject with a speed score, vocabulary score, or comprehension score one year or more than one year below his mental age score was selected as a Silent Reading Underachiever. 28 qualified as Silent Reading Underachievers.

Oral Reading Underachievers. Each of the preliminary underachievers was individually administered an oral reading test. The results were analysed into speed, accuracy and comprehension components. A subject with a speed score, or accuracy score, or comprehension score one year or more than one year below his mental age score was selected as an Oral Reading Underachiever. 43 qualified as Oral Reading Underachievers.

Comprehension Abilities Underachievers. Of the general reading areas - speed, vocabulary, accuracy and comprehension,

comprehension, being the most significant and complex, was pursued further. The preliminary underachievers were administered a test measuring five different comprehension abilities. A student with a score in one of these abilities one or more than one year below his mental age score was selected as a Comprehension Ability Underachiever. 38 qualified as Comprehension Abilities Underachievers.

As a result, in the final selection, there were three groups of underachievers: Silent Reading Underachievers, Oral Reading Underachievers and Comprehension Abilities Underachievers. It must be noted that these were not mutually exclusive groups.

Table I gives a summary description of these three groups.

TABLE I

THREE GROUPS OF FINAL READING UNDERACHIEVERS

Group	N	Boys	Girls	Number Per Grade	
Silent Reading Underachievers	28	15	13	VII	7
				VIII	11
				IX	10
Oral Reading Underachievers	43	20	23	VII	15
				VIII	12
				IX	16
Comprehension Abilities Underachievers	38	17	21	VI	12
				VIII	10
				IX	16

THE TESTING INSTRUMENTS

The testing instruments used in this study consisted of group and individual intelligence tests, group reading and individual reading tests, reading aptitude tests and achievement tests.

To assess the extent of reading underachievement, reading tests and intelligence tests, both group and individually administered, were used. To assess types of underachievement, different reading tests, both oral and silent, were administered. To investigate the correlates of reading underachievement, aptitude tests, subject achievement tests were included. The following is a list of the instruments used.

Type	Title
Group Intelligence	California Short Form Test of Mental Maturity, Junior High Level (1957 Edition).
Group Intelligence	Otis Self-Administering Test of Mental Maturity, Intermediate Examination, Form A.
Individual Intelligence	Wechsler Intelligence Scale for Children.
Silent Reading	The Gates Reading Survey (1958 Edition) Form I.
Individual Oral Reading	Neale Analysis of Reading Ability, Form A.
Comprehension Abilities	Van Wagenen Analytical Reading Scales, Junior Division, Form M.
Reading Aptitudes	Monroe-Sherman Reading Aptitude Tests, Intermediate Division.
Subject Achievement	Cooperative English Test, Lower Level, Form Z. (1953 Edition).
Subject Achievement	Cooperative Mathematics Test for Grades 7, 8, and 9. Form Y.
Subject Achievement	Cooperative Science Test for Grades 7, 8 and 9. Form Y.
Subject Achievement	Cooperative Social Studies Test for Grades 7, 8, and 9. Form Y.

Copies of the testing instruments are included in the appendix.

DESCRIPTION OF THE TESTS

The California Short-Form Test of Mental Maturity, Junior High Level. (1957 Edition).

This instrument consists of seven sub-tests, measuring four factors: spatial relationships, logical reasoning, numerical reasoning and verbal concepts. It yields a Language Score, a Non-Language Score, and a Total Score. The authors described the test as:

> ...an instrument for appraising mental development or mental capacity. It reveals information that is basic to any interpretation of present functioning and future potential in a relatively specific and critical area of human activities. (Sullivan, Clark and Tiegs, 1957, p.2)

The following is a description of each sub-test:

Test One - Sensing Right and Left - consists of pictures of hands, feet, gloves, in various positions. The subject is asked to discriminate left and right. It aims to measure the individual's mental ability to manipulate and perceive simple objects presented visually.

Test Two - Manipulation of Areas - consists of fifty items, each with four two- and three-dimensional drawings, representing views of a form in various positions. The subject is asked to discriminate the various views. It aims to test mental ability to manipulate and perceive more complicated spatial patterns.

Test Three - Similarities - consists of fifteen items, each with seven drawings. The subject is asked to identify a relationship existing between the first three, and then find from the other

four a drawing that is related, similar, to the first three in the same way. It aims to measure inductive and deductive reasoning through a non-verbal medium.

Test Four - Inference - consists of fifteen items, each with two premises. The subject is asked to arrive at a logical conclusion from these premises, and select his conclusion from three alternatives given. It is again a test of inductive and deductive reasoning, but through a verbal medium.

Test Five - Numerical Series - consists of ten numerical series items. The subject is asked to identify the principle governing each arrangement. It aims to test simple numerical concepts and reasoning.

Test Six - Numerical Quantity - consists of fifteen numerical problems and the subject is asked to find a solution. It aims to test quantitative thinking, through a medium both numerical and verbal.

Table VII - Verbal Concepts - consists of fifty items. Each item has a key word and four other words. The subject is asked to identify the word synonymous in meaning to the key word. It aims to test verbal concepts, a factor universally recognized as an important aspect of intelligence.

Hereafter this test will be referred to as "C.T.M.M."

Otis Self-Administering Test of Mental Maturity, Intermediate Examination.

Designed for Grades IV to IX, it consists of seventy-five items, and four alternative forms, A, B, C, and D. Each test item is framed as a question, with possible answers provided. An analysis of the seventy-five items reveals the variety of tasks a subject is asked

to perform. They include orientation, numerical reasoning, both simple and quantitative, logical reasoning, and verbal concepts. The author stressed this particular merit in the following manner:

> The form of the examination admits of the variety of types of questions instead of the limited number of types in the ordinary examinations. (Otis, 1928, p. 1)

An alternative-form reliability coefficient of .948 was reported by the author. Each item in the test was claimed to have been individually validated. Kuder in the Third Mental Measurements Yearbook (1949) stressed that the test compares favourably with other measures of general ability:

> ...For purpose of prediction of school and college success, these tests compare favourably with other measures of general ability. (Kuder, 1949, p. 331)

Hereafter this test will be referred to as "Otis."

Wechsler Intelligence Scale for Children.

One of the considerations made in the selection of an individual intelligence test for the reading underachievers was that it should not have a heavy load of verbal items. For this reason, the W.I.S.C., which has a verbal as well as a non-verbal section, was preferred over the Stanford-Binet. Wechsler emphasized this feature in his description of scale organization:

> The WISC consists of twelve tests which, like the adult scales, are divided into two subgroups identified as Verbal and Performance. (Wechsler, 1949, p. 5)

Research undertaken in the past ten years has yielded evidence to the diagnostic value of W.I.S.C. for retarded readers. These include studies by Graham (1952), Burks (1955), Altus (1956), Hirst (1960), Neville (1961), Kallos (1961), Jones (1962), and Patterra (1963).

Split-half reliability coefficients for different age levels were reported to range from .92 to .98 by the author. The test was standardized on 1100 boys and 1100 girls in eleven age groups, from five to fifteen years. The sample was controlled with references to areas, proportion of urban-rural distribution, parental occupation, age and sex. Correlation between WISC and Binet has been reported consistently at the range of .70 to .90, by Holland (1953), Arnold (1955) and Harlow (1957). Patterson, in the Fifth Mental Measurements Yearbook (1959) made a summary statement on its reliability and validity:

> ...The WISC, with some exception, is technically a satisfying instrument. The preliminary evidence now available indicates that the test will probably satisfy the major requirements of internal consistency, reliability, and validity. (Patterson, 1959, p. 560)

The Gates Reading Survey Tests (1958 Edition).

The tests comprise of three parts, Speed Test, Vocabulary Test, and Comprehension Test. They were designed for Grades III to X and provide three alternative forms. The fact that they measure different phases of reading ability made them a practical tool for the present investigation. This particular quality was stressed by Gates (1958) in the manual:

> The Reading Survey Tests were designed to reveal specific strengths and weaknesses in reading abilities. ...The tests measure different phases of reading ability. They are, in other words, diagnostic. They were designed for use as a team. (Gates, 1958, p. 1)

The following is a description of each of the three tests:

The Speed Test consists of thirty-six simple paragraphs, substantially of equal difficulty. A subject is asked to read the paragraphs as fast as possible, and answer a simple comprehension

exercise at the end of each paragraph, selecting the right answer from possible alternatives given. Time is strictly limited. Number of exercises correct represents the speed of reading. The reading speed thus measured is not simple, mechanical reading speed, but speed of reading pursued by the subject with an aim to accuracy and comprehension.

The Vocabulary Test consists of sixty-five items, each headed by a key word accompanied by five others. The subject is asked to choose, among the five words, a word closest in meaning, though not necessarily synonymous, to the key word. The exercises are arranged in order of difficulty. Time is not limited. The test aims at measuring the range and level of the subject's ability in word recognition and word meaning.

The Level of Comprehension Test consists of twenty-one passages, also arranged in order of increasing difficulty. Some key words are missing in each passage. The subject is asked to read the paragraph and fill in the blanks from possible answers given. There is no time limit. The test aims at measuring comprehension ability that is not contaminated by the necessity of speed.

With regard to test reliability, Gates reported alternative-form reliability coefficients ranging from .82 to .88 for various grades. The norms were reported to have been based on an extensive sampling of schools, chosen to provide a sampling of representative types of instruction, socio-economic status, and levels of intelligence. Preparation and standardization of the test materials seem thorough. Each of the items were weighted in relation to each of the remaining items and to the total score, for each grade population.

Neale Analysis of Reading Ability.

An oral reading test, it is individually administered. Three forms are provided, with each form consisting of six passages of prose, forming a continuous scale. The passages are presented in an attractive, narrative form, illustrated, and graded in respect to words used, sentence structure, and length of passages. The author described the purpose for which the test was constructed in the following manner:

> The Analysis of Reading Ability has been devised to meet a practical need for a diagnostic measure, which, while yielding scores of a traditional nature concerning a child's progress in reading, would, however, provide a sympathetic and stimulating situation in which his difficulties, weaknesses, types of error, persistence and attitudes could be assessed. (Neale, 1958, p. 3)

A brief account of the general administration procedure of this relatively new test is given below:

A subject is asked to read a passage orally. The types of errors are marked simultaneously by the examiner, and time required in reading each passage recorded. At the end of each passage, the subject is asked to answer orally standard comprehension questions. In this way a speed score, an accuracy score, and a comprehension score are obtained for each passage from one single reading. Testing is discontinued when a subject makes sixteen or more word recognition errors in a single paragraph.

Each record sheet is designed to facilitate the recording of the types of errors. The following are counted as word recognition errors:

1.	Mispronunciation.	Words wrongly pronounced.
2.	Substitutions.	Words in the narrative are substituted by other words.

3.	Refusals.	The subject pauses for approximately four seconds and is unable to make an attempt at a word.
4.	Additions.	Words inserted into the text.
5.	Omissions.	Words omitted from text.
6.	Reversals.	Reverses order of parts of a word. Strictly speaking, these are mispronunciations.

Alternative-form reliability coefficients were computed by the author for accuracy and comprehension separately, and at different grade levels. Correlation coefficients ranging from .96 to .98 were reported for accuracy and .92 to .98 for comprehension. Similar analysis was not computed for speed.

Over 2000 British children were used to establish the norm. The sample was controlled with reference to size, area, social-economic background, age, and sex. A seemingly thorough evaluation was conducted by the author with regard to test validity. Using factor-analysis on nine existing reading tests in Britain, the author arrived at three distinct aspects of reading: (1) the rate of mechanical reading, (2) the mechanical aspects of reading, (3) the understanding of words and ideas. These were pointed out by the author as comparable to the three distinct aspects of reading measured by the Neale test. In addition, a complex criterion was formed from three of these existing tests: the *Ballard One-Minute Test* for rate, the *Vernon Word Reading Test* for mechanical accuracy, the *Holborn Scale* for oral comprehension, and the *Peel English Test* for a general measure of reading. The validity coefficient was found to be .95.

It is to be noted that the Neale test was constructed for the elementary and lower section of the junior high school. This limitation was recognized. But as the test was used for underachievers, it was regarded that the limitation would be minimized and that it would be out-weighed by other characteristics of the test, especially the distinct division of oral reading abilities. The outcome of the present investigation did show the limitation mentioned above not unduly restrictive for the particular subjects concerned.

Van Wagenen Analytical Reading Scales, Junior Division.

The test attempts to analyse five phases of silent reading comprehension, and provides an intermediate, junior, and senior division, with the junior division constructed for Grades VII to IX. Each phase of comprehension abilities measured is equally represented in the total measure, yet at the same time yielding a separate score. The following is a description by the author as to the purpose for which the test was constructed:

> The Analytical Reading Scales, with 20 tasks in each phase of reading ability measured, were designed to yield more reliable measures of reading ability. (Van Wagenen, 1953, p. 1)

The five comprehension abilities measured are:

1. The Ability to See the Main Ideas in a Paragraph.
2. The Ability to Notice Simple Details Stated in the Paragraph.
3. The Ability to See the More Complex Ideas Expressed in Groups of Two or More Sentences.

4. The Ability to Interpret the Content of Paragraphs in Forming Inferences.

5. The Ability to Interpret the Content of Paragraphs.

The scores of the test are expressed in C-scores, age scores and grade scores. It is a relatively new test and possesses the freshness and vigour of a new instrument. With a probable error of measurement less than 2 C-score units, as reported by the author, its reliability seems fair. Evaluation of its validity by item analysis has not been reported. But the structure of the paragraphs, the comprehension exercises, seem to justify the claim.

Monroe-Sherman Reading Aptitude Tests. Intermediate Form.

Monroe-Sherman Reading Aptitude and Achievement Tests are published in a joint edition. For this investigation only Part II, containing the aptitude tests, was used. The intermediate form has been designed for Grades III to IX, providing no alternative form.

The aptitude tests are comprised of several components, visual, auditory, motor and language. The language component was discarded in the study as approximating a reading test. The following is a description of each of the tests used.

1. Visual Letter Memory. It consists of eight cards, on each is printed a series of letters, grouped to form a nonsense word. A card is exposed to the subject for five seconds, and at the end of each exposure the subject is asked to reproduce on paper the letters in the exact order. It is interpreted as a

measurement of aptitude to remember proper sequence of simple, familiar symbols visually.

2. Visual Form Memory. The test consists of four cards, with four large, unfamiliar figures drawn on each. A card is exposed to the subject for ten seconds, and at the end of each exposure the subject is asked to reproduce on paper the figures exactly as they were on the card. It is interpreted as a measurement of aptitude to remember accurately a series of unfamiliar forms, shapes, figures visually.

3. Auditory Letter Memory. The test is comprised of sixteen items, each of which consists of a series of letters. Similar to Visual Letter Memory Test, these letters are grouped to form a nonsense word. The examiner reads each letter at the rate of one per second, and at the end of which the subject is asked to reproduce the series on paper in the exact order. It is interpreted as a measurement of aptitude to remember the proper sequence of simple, familiar symbols auditorily.

4. Auditory Orientation and Discrimination. Twenty-five items comprise the test. Each item is headed by a key word, followed by four other words approximating in sound to the first. The examiner reads the key word, pauses, and reads the other four words. The subject decides which of the four words is identical in sound to the key word, and locates the position it occupied in the series by marking one of four spaces provided. It is interpreted as a measurement of auditory aptitude to remember the proper sequence of sounds and to discriminate the subtle differences between sounds.

5. Motor - Copying Text. A standard text, carrying a narrative phrased in simple sentences, is shown to the subject. He is then asked to copy, on lines provided below the text, as quickly and as accurately as possible, within one and a half minutes. The test is interpreted as a measurement of visual-muscular coordination in the task of copying simple, familiar visual symbols.

6. Motor - Cross Out Letters. A printed paragraph containing a letter 'a' in every alternative word is shown to the subject. He is asked to cross out all the letter'a's he can find, as quickly and as accurately as possible, within one minute, having been assured that 'a' appears in every other word. The test is interpreted as a test of visual-muscular coordination in the simple task of discriminating and delineating small, yet familiar symbols.

It is to be noted that the above interpretations were made by the investigator, and in these contexts the aptitude tests were studied. No technical report is provided by the author.

Cooperative Achievement Test Battery for Junior High School Students.

Four tests are included in this battery:

1. Cooperative English Test, Lower Level (1953 Edition).
2. Cooperative Mathematics Test for Grades 7, 8, and 9.
3. Cooperative Science Test for Grades 7, 8, and 9.
4. Cooperative Social Studies Test for Grades 7, 8, and 9.

The purpose for which the tests were constructed was described in a summary statement by the publisher:

> The tests in this folio comprise a basic battery with which the achievement of junior high school students in four major curriculum areas may be evaluated. Test results are useful for measurement of growth in the basic competencies, for placement, and for identification of relative strengths and weaknesses. (Cooperative Test Division, 1953, cover page)

The following is a description of each of the four tests:

Cooperative English Test. It is divided into two tests of expression and one test of reading comprehension. The Reading Comprehension Test measures three areas: vocabulary, speed of comprehension, level of comprehension. The Mechanics of Expression measures correct usage in grammar and syntax, punctuation, capitalization, and spelling. Effectiveness of Expression attempts to measure the subject's ability to express himself.

Cooperative Mathematics Test. It consists of four parts. Part I measures simple mechanical skill in mathematics, and Part II measures the subject's knowledge of mathematical facts, terms and concepts. Part III is concerned with the application of knowledge, including application of knowledge of skills, facts, terms and concepts to solve mathematical problems. Part IV measures the degree to which the subject can grasp, evaluate, appreciate the impact of a mathematical situation. As Fifer stressed, in the Fifth Mental Measurements Yearbook (1959):

> ...Part 4, Appreciation, would be more appropriately called "Interpretation," since most of the items measure the ability to interpret numerical data and symbols. Many of the most interesting items are in this section of the test. (Fifer, 1959, p. 563)

Cooperative Science Test. Three parts comprise the test. Part I measures the subject's informational background in science.

Part II measures knowledge of scientific terms and concepts. Part III measures the subject's ability to comprehend and interpret text, thereby arriving at certain conclusions from given situations.

Cooperative Social Studies Test. Also three parts comprise the test. Part I measures the subject's informational background and Part II measures knowledge of terms and concepts. Part III measures ability to make use of background information, knowledge of terms and concepts in order to comprehend and interpret the text, and arrive at certain conclusions.

In the present investigation, it was necessary to obtain information on the achievement of underachievers in major curriculum areas. The widely used Cooperative tests, comprehensive in scope, and constructed for a junior high population, were chosen for the purpose.

PROCEDURE AND TREATMENT OF DATA

Administration of Tests.

(a) Total Junior High Population.

The investigator administered the Gates Reading Survey to the total junior high population in the month of November. Each of the five classes was administered the test at a separate time, but all within the third week of November. C.T.M.M. intelligence quotients were available for Grade VIII, administered by the school the same November, available for Grade IX, administered the previous November, and Otis intelligence quotients for Grade VII, administered the previous November. 116 students were found to have both the Gates test and one of the intelligence tests administered by end of November.

They formed the population from which the preliminary reading underachievers were selected.

(b) Preliminary Underachievers.

In the month of December and the first two weeks of January, the following tests were administered. Each preliminary underachiever was administered by the investigator the Wechsler Intelligence Scale for Children. Individual achievement in the Gates Reading Survey was analysed into speed, vocabulary, comprehension components. Each was also individually administered by the investigator the Neale Analysis of Reading Ability. In cooperation with teachers in the school, all preliminary underachievers were administered the Van Wagenen Analytical Reading Scales. Due to the length of the test, and the size of the group, the subjects were sub-divided, and two test sessions were scheduled for each division. This was possible as the test was untimed.

(c) Final Underachievers.

The following tests were administered in the second half of January and the first week of February. In cooperation with teachers in the school, the final underachievers were administered the Cooperative Achievement Test Battery. The investigator administered the Monroe-Sherman Reading Aptitude Tests by subdividing the Final Underachievers into workable small units. As a trained worker was needed, only one group was examined at a particular time. But efforts were made so that there was a considerable time-lapse, of approximately two days, between the sitting of one group and the sitting of another. Due to the nature

of the tests, demanding immediate recollection and accurate reproduction of stimuli, what information the pre-tested might obtain from the tested would have impact much reduced by this time interval.

Treatment of Data.

All data were recorded on large work sheets. For each of the three groups of final underachievers, the following steps were planned:

1. Whole Group. To investigate the degree of interrelationships among reading abilities.

Sub-groups. To investigate the degree of relationships between underachieving reading ability and remaining reading abilities.

2. Whole Group. To investigate the degree of relationships between reading abilities and reading aptitudes

Sub-groups. To investigate the degree of relationships between underachieving reading ability and reading aptitudes.

3. Whole Group. To investigate the degree of relationships between reading abilities and curriculum areas.

Sub-groups. To investigate the degree of relationships between underachieving reading ability and curriculum areas.

The statistical method decided on to carry out these investigations was correlation analysis. The major part of the computation was done at the University of Alberta Computing Centre. The data for the individual subjects were punched on I.B.M. cards, and grouped according to the plan described above. Raw scores were used in the calculation of correlation coefficients. The program

chosen was simple linear intercorrelation, constructed by Montgomery (1963). The term simple implied that only two variables were considered at a time. The total number of variables used in the program may be up to 85, and number of observations up to 99,999. The output requested were raw sums, sums of squares, sums of cross products, and correlation coefficients. Computational procedures evolved from the basic formula for coefficient of correlation mentioned in most sources, as well as in Edwards (1954, p. 147):

$$r = \frac{\Sigma XY - \dfrac{(\Sigma X)(\Sigma Y)}{n}}{\left(\Sigma X^2 - \dfrac{(\Sigma X)^2}{n}\right)\left(\Sigma Y^2 \dfrac{(\Sigma Y)^2}{n}\right)}$$

The I.B.M. 1620 Computer was used for the computation. As results were completed for each group of underachievers, the investigator used a Friden Calculator to spot-check the results. Findings by both methods were identical. To determine whether a correlation coefficient was significant, confidence limits were established at 5% and 1% levels for different degrees of freedom.

CHAPTER IV

ANALYSIS OF DATA AND SUMMARY OF FINDINGS

This chapter contains data from the testing of 28 Silent Reading Underachievers, 43 Oral Reading Underachievers, and 38 Comprehension Abilities Underachievers. The nine tables included in this chapter record information about these three groups of reading underachievers, considered separately.

SILENT READING UNDERACHIEVERS

In the following analysis the Silent Reading Underachievers are first considered as a whole. They are also considered separately as underachievers in speed, in vocabulary, and in comprehension, depending on the area of underachievement.

1. Intercorrelation of Silent Reading Abilities. In Table II are presented the intercorrelations of silent reading abilities, as measured by the Gates Reading Survey, of the four groups of Silent Reading Underachievers mentioned. With the underachievers considered as a whole, their ability in word recognition and word meaning was found significantly related to their ability to comprehend text. Correlation between their vocabulary and comprehension was found to be .401, significant at the 5% level of confidence, (Table II, Item B-3). This inter-relationship of reading abilities became more specific when the same underachievers were grouped according to specific area of underachievement. Where speed was the area of underachievement, ability to read quickly and

TABLE II

SILENT READING UNDERACHIEVERS: INTERCORRELATION OF SCORES IN SILENT READING ABILITIES

				1 Speed	2 Vocabulary	3 Comprehension	r at 5%	r at 1%
All Silent Reading Underachievers	(N=28)	A	Speed	-	.342	.276	.374	.479
		B	Vocabulary	-	-	.401*	.374	.479
		C	Comprehension	-	-	-	.374	.479
Underachievers in Speed	(N=15)	D	Speed	-	.632*	.221	.514	.641
Underachievers in Vocabulary	(N=15)	E	Vocabulary	.531*	-	.335	.514	.641
Underachievers in Comprehension	(N=14)	F	Comprehension	.648*	.851**	-	.532	.661

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

accurately was significantly related to knowledge of words: with the Silent Reading Underachievers who underachieved in speed, correlation between their speed and vocabulary was found to be .632, significant at 5% level, (Table II, Item D-2). With underachievers in vocabulary, correlation between their vocabulary and speed was also found to be significant at 5% level. Where comprehension was the area of underachievement, comprehension was found to be significantly correlated both with speed and with vocabulary. The correlations were .648 and .851, significant at 5% and 1% level of confidence respectively, (Table II, Items F-1, F-2). Hence comprehension ability was found to be the most complex and most involved with other silent reading abilities.

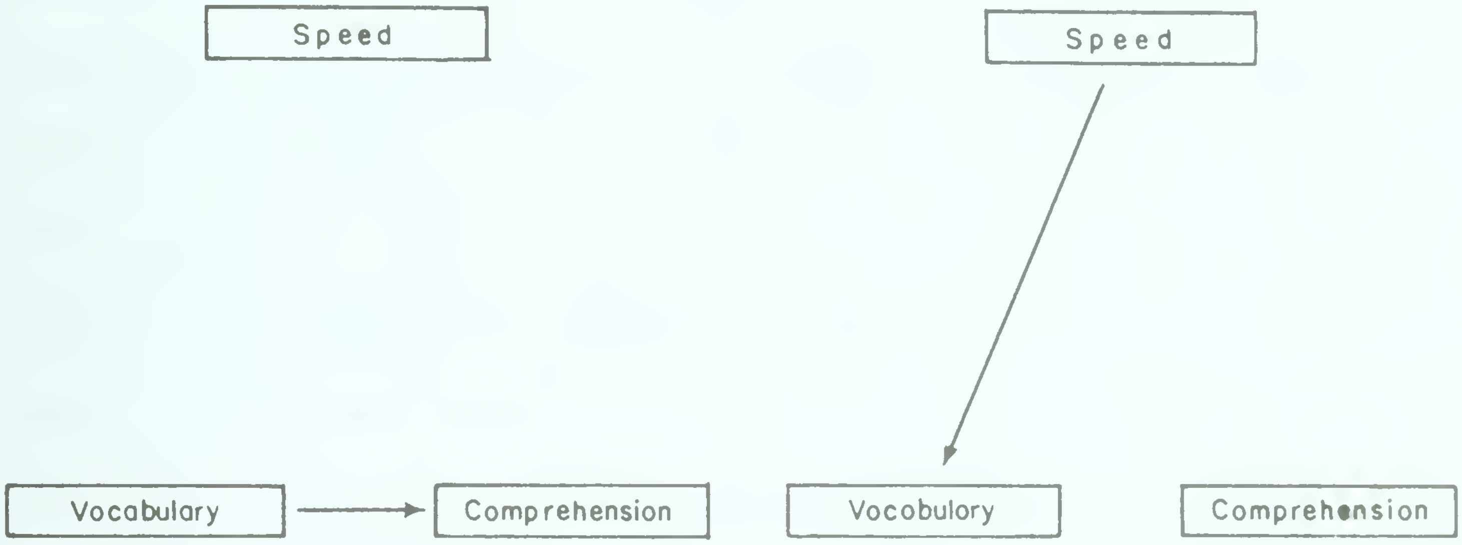
Fig. 1, is a graphic summary of the above findings. It shows that the three silent reading abilities were found to be intricately inter-related among the Silent Reading Underachievers. With the underachievers in general (Fig. 1-a), vocabulary and comprehension were found to be significantly related. The interrelationships of reading abilities were again evident and became more specific when the underachievers were sub-divided, (Fig. 1-b, -c, -d). In each instance the underachieving reading ability was found to be significantly related to at least one of the other abilities, and where comprehension was the underachieving ability, it was found to be most involved with other abilities.

FIGURE I

A GRAPHIC SUMMARY OF INTERCORRELATIONS OF SILENT READING ABILITIES AMONG SILENT READING UNDERACHIEVERS

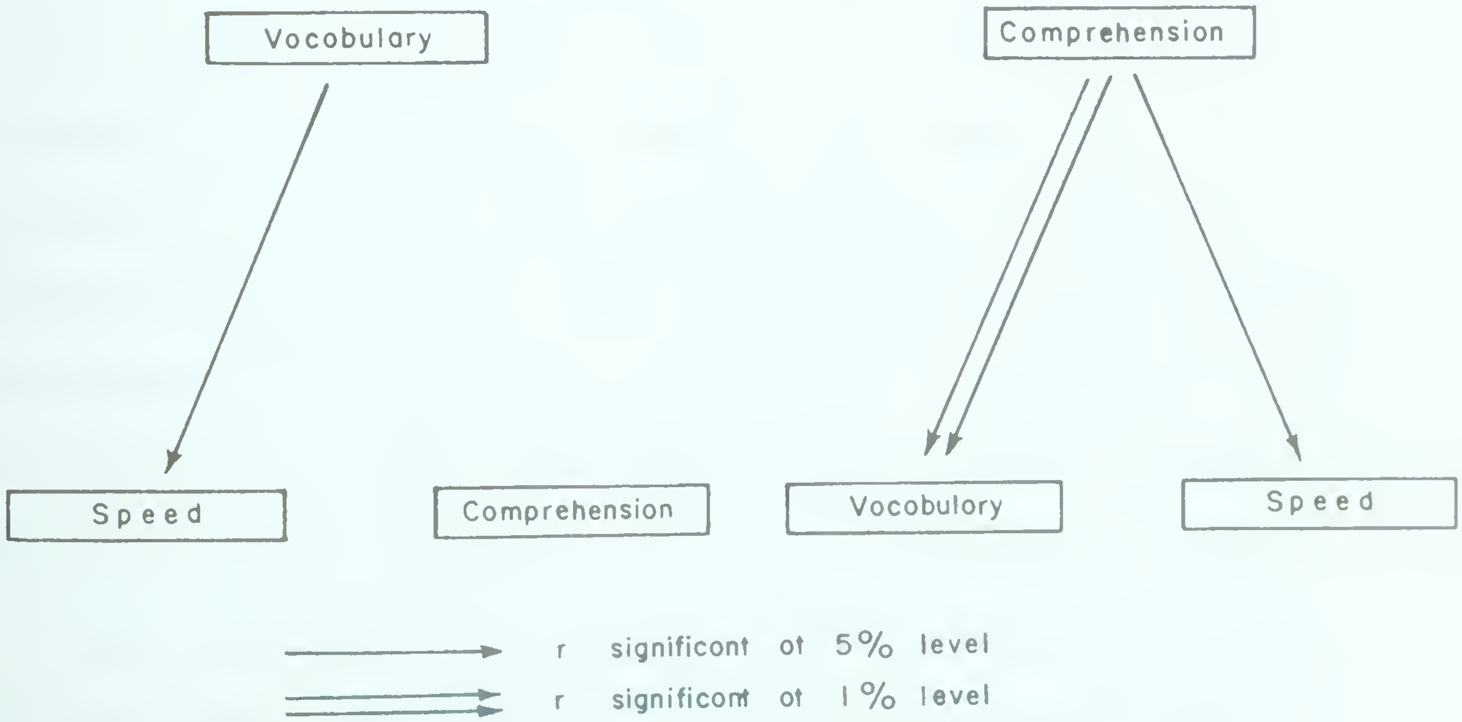
(a) Total Group: Vocabulary and comprehension abilities were inter-related.

(b) Speed Underachievers: Speed, the underachieving ability, was related to vocabulary.



(c) Vocabulary Underachievers: Vocabulary, the underachieving ability, was related to speed.

(d) Comprehension Underachievers: Comprehension, the underachieving ability, was related both to speed and to vocabulary.



2. Intercorrelation Between Scores in Silent Reading Abilities and Scores in Reading Aptitudes. Presented in Table III, are the intercorrelations between scores in silent reading abilities and scores in reading aptitudes, the latter measured by the Monroe-Sherman Reading Aptitude Tests, for the Silent Reading Underachievers. With the underachievers considered as a whole, all three reading abilities were found to exhibit a significant degree of relationship with at least one visual or one auditory test. Correlations found between speed and auditory letter memory, vocabulary and visual letter memory, vocabulary and auditory orientation-and-discrimination, were all found to be significant at 5% level. Correlation between comprehension and visual letter memory was found to be even higher. It was .583, significant at 1% level, (Table III, Item C-1). This pattern of close relationship with visual and auditory tests was approximated when the same underachievers were sub-divided. With the speed underachievers, where speed was the area of underachievement, speed was significantly related to visual form memory, auditory orientation-and-discrimination, both aptitudes demanding discrimination. The correlations were .602 and .574, both significant at 5% level, (Table III, Items D-2, D-4). With the underachievers in vocabulary, correlation between vocabulary,which measured the knowledge of words, and visual letter memory, which measured the aptitude to remember the proper sequence of letters, was found to be .543, significant at 5% level, (Table III, Item E-1). With the comprehension underachievers, where comprehension was the area of underachievement,

TABLE III

SILENT READING UNDERACHIEVERS: INTERCORRELATIONS BETWEEN SCORES IN SILENT READING ABILITIES AND SCORES IN READING APTITUDE TESTS

				1	2	3	4	5	6	7		
				Visual		Auditory		Motor				
				Letter Memory	Form Memory	Letter Memory	Orientation and Discrimination	Copy Text	Cross out Letters	Full Score	r at 5%	r at 1%
All Silent Reading Underachievers	(N=28)	A	Speed	.286	.275	.391*	.112	.026	.014	.050	.374	.479
		B	Vocabulary	.423*	.321	.272	.391*	.084	.343	-.232	.374	.479
		C	Comprehension	.583**	.258	.247	.240	.293	.203	-.448*	.374	.479
Underachievers in Speed	(N=15)	D	Speed	.417	.602*	.168	.574*	-.284	-.212	.223	.514	.641
Underachievers in Vocabulary	(N=15)	E	Vocabulary	.543*	.157	.469	.016	-.119	.205	-.391	.514	.641
Underachievers in Comprehension	(N=14)	F	Comprehension	.832**	.696**	.429	.506	.576*	.497	-.271	.532	.661

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

comprehension was found to be significantly related to both visual letter memory, and to visual form memory, and in addition to motor copying text. All three aptitudes demanded visual memory and visual discrimination. The respective correlations were .832, .696, significant at 1%, and .576, significant at 5% level, (Table III, Items F-1, F-2, F-5).

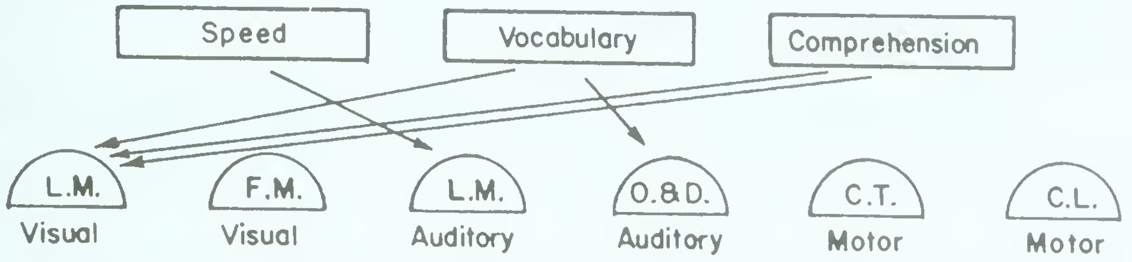
It was noted that with only one exception, correlations between reading abilities and aptitude full score were all found to be statistically non-significant. This exception was between comprehension and aptitude full score. Correlation was -.488, significant at 5% level and negative, (Table III, Item C-7).

Fig. 2, is a graphic summary of the above findings. It shows that among Silent Reading Underachievers, silent reading abilities were found to be closely associated with some, but not all components of the reading aptitudes measured. With the underachievers in general (Fig. 2-a), all three silent reading abilities were found to be significantly related to one or more of the auditory or visual components. This pattern of association was also evident and became more specific when the same underachievers were sub-divided, (Fig. 2-b, -c, -d). In each instance the underachieving reading ability was found to be significantly related to a particular visual or auditory aptitude, or combination of aptitudes. And of the three silent abilities, comprehension was the most closely associated with reading aptitudes and vocabulary the least associated.

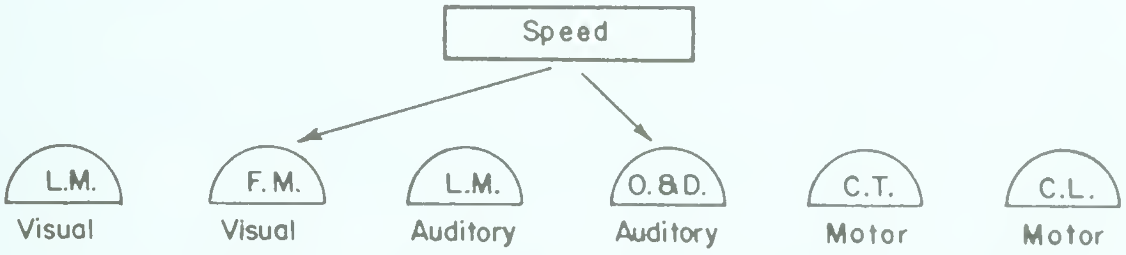
FIGURE 2

A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS BETWEEN SILENT READING ABILITIES AND READING APTITUDES

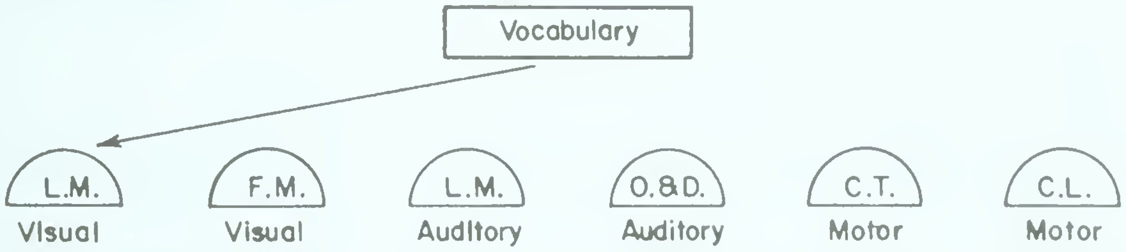
(a) Total Group: Speed, vocabulary and comprehension were related to visual and auditory components of reading aptitudes



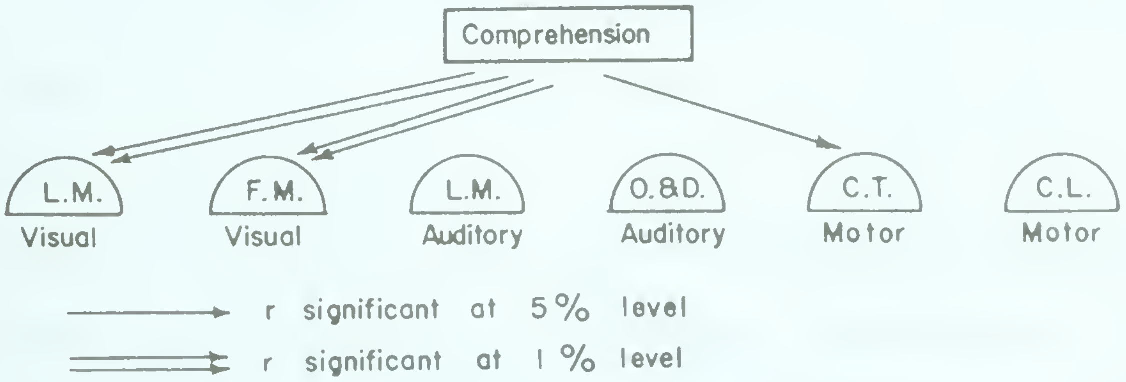
(b) Speed Underachievers: Speed, the underachieving ability, was related to aptitudes of discrimination



(c) Vocabulary Underachievers: Vocabulary, the underachieving ability, was related to visual letter memory



(d) Comprehension Underachievers: Comprehension, the underachieving ability, was related to aptitudes of visual memory and visual discrimination



L.M. Letter Memory
F.M. Form Memory
O.&D. Orientation and Discrimination
C.T. Copy Text
C.L. Cross Out Letter

3. Intercorrelation Between Scores in Silent Reading Abilities and Scores in Four Academic Subjects. Presented in Table IV, are the intercorrelations between scores in silent reading abilities and scores in four major academic subjects, as measured by their full scores in Cooperative Mathematics Test, Cooperative Science Test, Cooperative Social Studies Test, Cooperative English Test, for the Silent Reading Underachievers. With the underachievers considered as a whole, only one subject area and one reading ability were significantly correlated. Correlation between reading speed and English as measured was found to be .379, significant at 5% level of confidence, (Table IV, Item A-4). When the same underachievers were sub-divided, again only one significant correlation was found. With the underachievers in speed, correlation between speed and social studies was found to be .577, significant at 5% level, (Table IV, Item D-3). But correlation between speed and remaining subject areas tested were found to be statistically non-significant. With underachievers in vocabulary, correlations between vocabulary and the four subject areas measured were found not statistically significant. With the underachievers in comprehension, correlations between comprehension and the subject areas were again found to be statistically non-significant.

It was thus noted that silent reading abilities as measured were not highly related to subject achievement represented by full scores.

TABLE IV

SILENT READING UNDERACHIEVERS: INTERCORRELATION BETWEEN SCORES IN SILENT READING ABILITIES AND SCORES IN DIFFERENT ACADEMIC SUBJECTS

				1	2	3	4		
				Mathematics	Science	Social Studies	English	r at	r at
All Silent Reading Underachievers	(N=28)	A	Speed	.073	.110	.015	.379*	.374	.479
		B	Vocabulary	.115	.065	.182	-.087	.374	.479
		C	Comprehension	-.099	-.042	-.159	-.193	.374	.479
Underachievers in Speed	(N=15)	D	Speed	.292	.455	.577*	.445	.514	.641
Underachievers in Vocabulary	(N=15)	E	Vocabulary	.234	.099	-.033	.175	.514	.641
Underachievers in Comprehension	(N=14)	F	Comprehension	-.078	-.094	-.010	-.323	.532	.661

*Significant at the 5 per cent level.

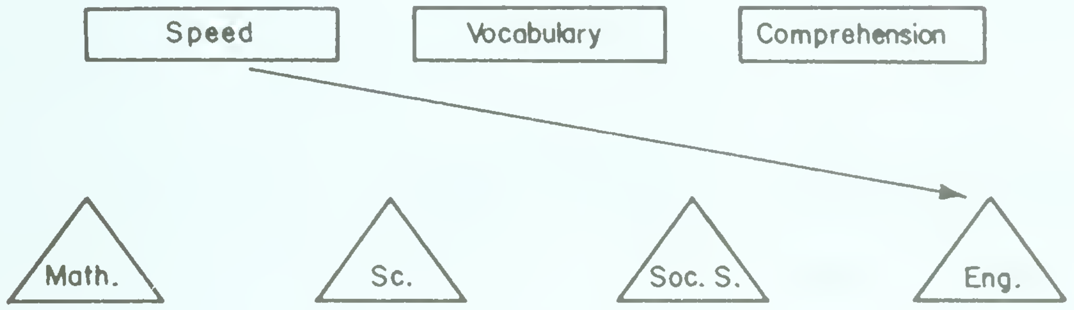
**Significant at the 1 per cent level.

Fig. 3, is a graphic summary of the above findings. It shows that among Silent Reading Underachievers, the silent reading abilities were not closely associated with achievement in the curriculum areas as measured. With the underachievers in general (Fig. 3-a), speed was found to be significantly related to English. This was the only significant relationship. With the same underachievers subdivided, (Fig. 3-b, -c, -d), this pattern of sparse relationship was continued. With speed underachievers, where speed was the underachieving ability, speed was found to have a significant relationship with social studies. Where vocabulary or comprehension was the underachieving ability, neither was found to be significantly related to achievement in any of the four subject areas.

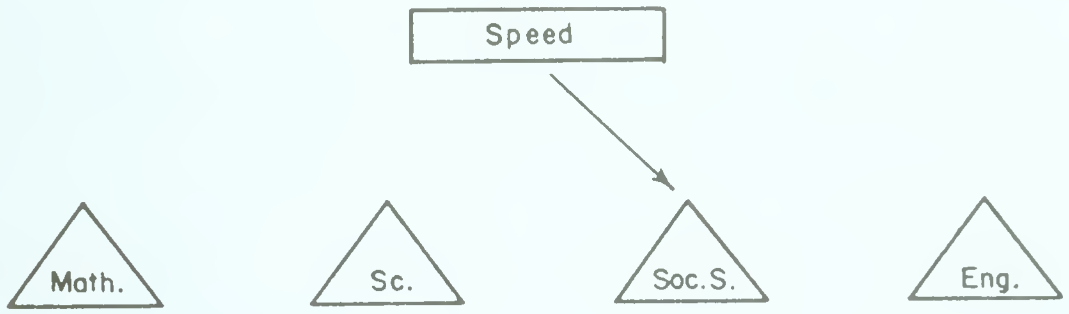
FIGURE 3

A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS BETWEEN SILENT READING ABILITIES AND CURRICULUM ACHIEVEMENT

(a) Total Group: Speed ability was related to achievement in English. This was the only significant correlation



(b) Speed Underachievers: Speed, the underachieving ability, was related to achievement in social studies



(c) Vocabulary Underachievers: Vocabulary, the underachieving ability, was not related to achievement in the subject areas

(d) Comprehension Underachievers: Comprehension, the underachieving ability, was not related to achievement in the subject areas

→ r significant at 5 % level

⇉ r significant at 1 % level

ORAL READING UNDERACHIEVERS

In the following analysis, the Oral Reading Underachievers are first considered as a whole. They are also considered separately as underachievers in speed, in accuracy, and in comprehension, depending on the area of underachievement.

1. Intercorrelation of Oral Reading Abilities. Presented in Table V, are the intercorrelations between oral reading abilities as measured by the Neale Analysis of Reading Ability, of the Oral Reading Underachievers. With the underachievers considered as a whole, their ability to read with accuracy was found to be highly significantly related to both ability to read with speed and the ability to comprehend text. Correlations between speed and accuracy, and comprehension were found to be .781 and .452 respectively, both significant at 1% level of confidence, (Table V, Items A-2, B-3). When the same underachievers were sub-divided, the pattern of inter-relationships became even more specific and intricate. With the accuracy underachievers, where reading accuracy was the area of underachievement, accuracy was again found to be significantly related to both speed of reading and comprehension ability. Correlations between accuracy and speed, and comprehension, were found to be .830, significant at 1% level, and .442, significant at 5% level. With comprehension underachievers, comprehension, their area of underachievement, was found to have a significant relationship both with ability to read accurately and with ability

TABLE V

ORAL READING UNDERACHIEVERS: INTERCORRELATION OF SCORES IN ORAL READING ABILITIES

				1 Speed	2 Accuracy	3 Comprehension	r at 5%	r at 1%
All Oral Reading Underachievers	(N=43)	A	Speed	-	.781*	.246	.304	.393
		B	Accuracy	-	-	.452**	.304	.393
		C	Comprehension	-	-	-	.304	.393
Underachieved in Speed	(N=4)	D	Speed	(Only four of Oral Underachievers underachieved in speed. No correlations were computed).				
Underachieved in Accuracy	(N=28)	E	Accuracy	.830**	-	.442*	.374	.479
Underachieved in Comprehension	(N=33)	F	Comprehension	.412*	.543**	-	.349	.449

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

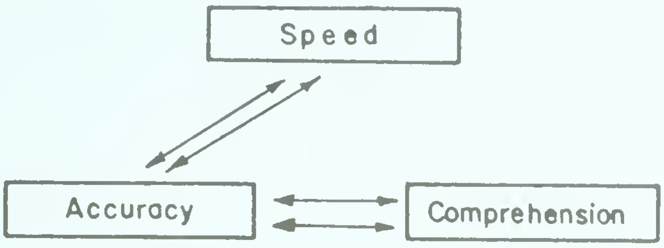
to read with speed. Correlations between comprehension and speed, comprehension and accuracy were found to be .412 and .543, significant at 5% and 1% level respectively. Among the Oral Reading Underachievers, only four underachieved in speed. No intercorrelations were computed.

Fig. 4, is a graphic summary of the above findings. It illustrates that oral reading abilities, among Oral Reading Underachievers, were found to be closely inter-related. With Oral Reading Underachievers in general, (Fig. 4-a), ability to read with accuracy was found to be highly significantly related to both ability to read with speed and ability to comprehend text. When the same underachievers were subdivided into accuracy and comprehension underachievers, (Fig. 4-c, -d), the inter-relationships of oral abilities became even more specific. In each instance, the underachieving reading ability was found to be significantly related to the other two abilities.

FIGURE 4

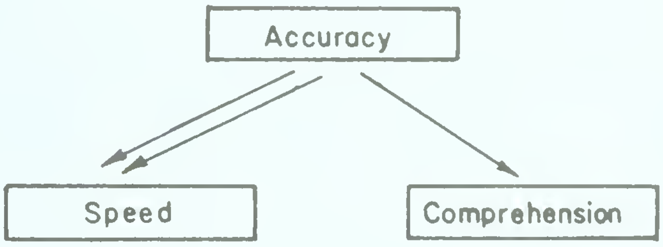
A GRAPHIC SUMMARY OF INTERCORRELATIONS OF ORAL READING ABILITIES AMONG ORAL READING UNDERACHIEVERS

(a) Total Group: Accuracy was related to speed and related to comprehension

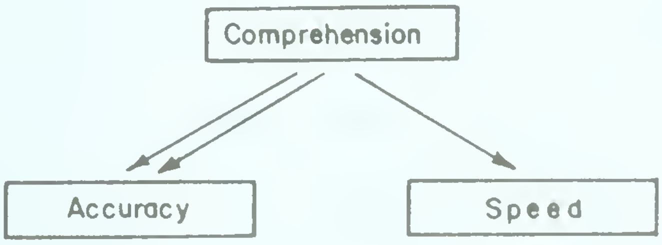


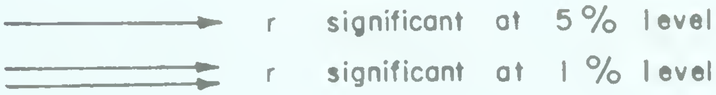
(b) Speed Underachievers: Number was too small

(c) Accuracy Underachievers: Accuracy, the underachieving ability, was related both to speed and comprehension



(d) Comprehension Underachievers: Comprehension, the underachieving ability, was related both to speed and accuracy





2. Intercorrelation Between Scores in Oral Reading Abilities and Scores in Reading Aptitudes. Presented in Table VI, are the intercorrelations between scores in oral reading abilities and the scores in reading aptitudes, the latter measured by Monroe-Sherman Reading Aptitude Tests, for the Oral Reading Underachievers. With the underachievers considered as a whole, all three reading abilities were found to exhibit a significant relationship with one or more than one of the visual or auditory tests. Correlations between speed and visual letter memory, and auditory letter memory, and correlations between accuracy and visual letter memory, visual form memory, and auditory letter memory, were all found to be significant at 5% level of confidence. Correlation between comprehension and visual form memory was .459, significant at 1% level, (Table VI, Items C-2). This pattern of close relationship with visual and auditory tests became more specific when the underachievers were sub-divided. With the accuracy underachievers, where reading accuracy was the area of underachievement, accuracy was found to be significantly related to visual letter memory, visual form memory and auditory letter memory, three aptitudes demanding memory of details. Correlations were .587, .572, significant at 1% level, and .383, significant at 5% level, (Table VI, Items E-1, E-2, E-3). With the comprehension underachievers, where comprehension was the area of underachievement, comprehension was found to be significantly related to both visual letter memory, and to visual form memory, and in addition to motor copying text. All three aptitudes demanded visual memory and visual

TABLE VI

ORAL READING UNDERACHIEVERS: INTERCORRELATIONS BETWEEN SCORES IN ORAL READING ABILITIES AND SCORES IN READING APTITUDE TESTS

				1	2	3	4	5	6	7		
				Visual		Auditory		Motor				
				Letter Memory	Form Memory	Letter Memory	Orientation and Discrimination	Copy Text	Cross out Letters	Full Score	r at 5%	r at 1%
All Oral Reading Underachievers	(N=43)	A	Speed	.309*	.172	.346*	.181	.106	.150	.205	.304	.393
		B	Accuracy	.354*	.323*	.352*	.080	.146	.235	.134	.304	.393
		C	Comprehension	.190	.459**	.230	.020	.188	-.039	-.120		
Underachieved in Speed	(N=4)	D	Speed	(Only four of Oral Underachievers underachieved in speed. No correlations were computed)								
Underachieved in Accuracy	(N=28)	E	Accuracy	.587**	.572**	.383*	.237	.088	.182	.218	.374	.479
Underachieved in Comprehension	(N=33)	F	Comprehension	.465**	.509**	.339	.104	.356*	.064	-.059	.349	.449

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

discrimination. The correlations were .465, .509, significant at 1% level, and .356 significant at 5% level, (Table VI, Items F-1, F-2, F-5).

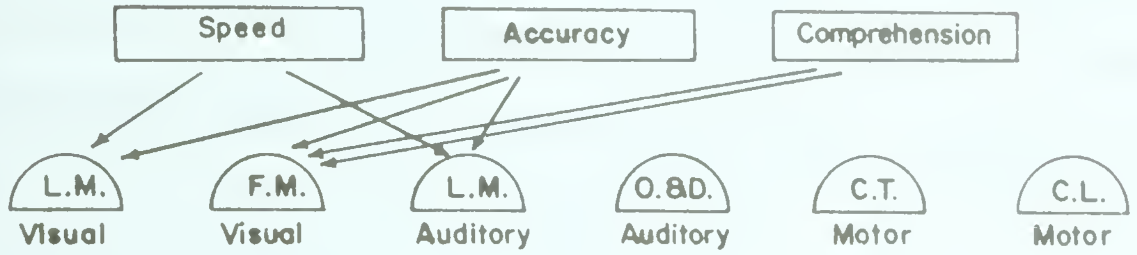
It was noted that with no exception, correlations between the oral reading abilities and aptitude full score were found to be statistically non-significant, (Table, VI, Column 7).

Fig. 5, is a graphic summary of the above findings. It shows that oral reading abilities, among Oral Reading Underachievers, were significantly related to some, though not all, of the components of reading aptitudes. With the underachievers in general (Fig. 5-a), all three oral reading abilities were found to have a significant relationship with one, or more than one, of the visual or auditory aptitudes. This pattern of association was evident and became more specific when the same underachievers were sub-divided into accuracy and comprehension underachievers. In each instance the underachieving reading ability was significantly related to a particular combination of reading aptitudes. And accuracy and comprehension were equal in the number of aptitudes with which they were associated.

FIGURE 5

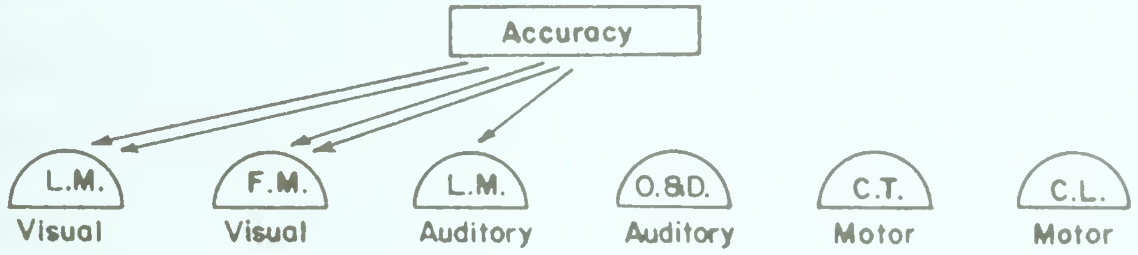
A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS
BETWEEN ORAL READING ABILITIES
AND READING APTITUDES

(a) Total Group: Speed, accuracy and comprehension were related to visual and auditory components of reading aptitudes

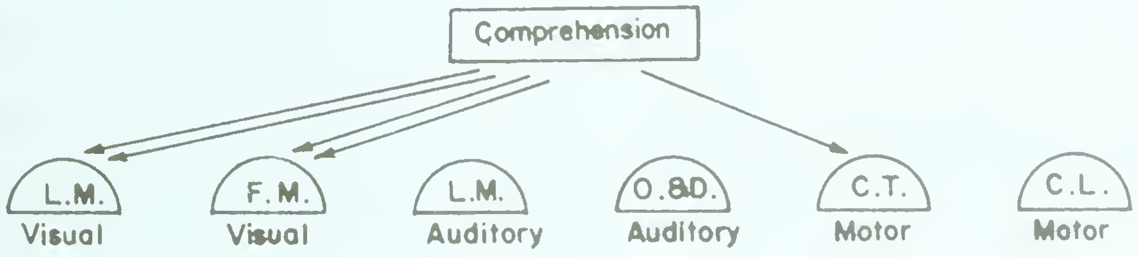


(b) Speed Underachievers: Number was too small

(c) Accuracy Underachievers: Accuracy, the underachieving ability, was related to aptitudes demanding memory of details



(d) Comprehension Underachievers: Comprehension, the underachieving ability, was related to aptitudes demanding visual memory and visual discrimination



→ r significant at 5% level

⇒ r significant at 1% level

L.M.	Letter Memory
F.M.	Form Memory
O. & D.	Orientation and Discrimination
C. T.	Copy Text
C. L.	Cross out Letter

3. Intercorrelation Between Scores in Oral Reading Abilities and Scores in Four Academic Subjects. Presented in Table VII, are the intercorrelations between scores in oral reading abilities and scores in four major academic subjects, the latter measured by Cooperative Mathematics Test, Cooperative Science Test, Cooperative Social Studies Test, Cooperative English Test, for the Oral Reading Underachievers. With the underachievers considered as a whole, two of the reading abilities, ability to read with accuracy and ability to read with speed, were found to exhibit a significant degree of relationship with two subject areas, science and English. Correlations between speed and science, speed and English were found to be .357 and .428, significant at 5% level and 1% level of confidence respectively. Correlations between accuracy and science, accuracy and English were found to be .399 and .421, both significant at 1% level of confidence, (Table VII, Items B-2, B-4). But correlation between comprehension and all four subjects were found to be statistically non-significant. Assessing the three reading abilities together, ability to read accurately was found to have the closest relationship with achievement in the subject areas and comprehension the least relationship. With the same underachievers sub-divided, this pattern was approximated. With the accuracy underachievers, where ability to read accurately was the area of underachievement, reading accuracy was found to be significantly related to science, social studies and English. The correlations were .468, .409,

TABLE VII

ORAL READING UNDERACHIEVERS: INTERCORRELATION OF SCORES IN ORAL READING ABILITIES AND SCORES IN DIFFERENT ACADEMIC SUBJECTS

				1	2	3	4		
				Mathematics	Science	Social Studies	English	r at 5%	r at 1%
All Oral Reading Underachievers	(N=43)	A	Speed	.183	.357*	.255	.428**	.304	.393
		B	Accuracy	.237	.399**	.294	.421**	.304	.393
		C	Comprehension	.164	.093	.256	.058	.304	.393
Underachieved in Speed	(N=4)	D	Speed	(Only four of Oral Underachievers underachieved in speed. No correlations were calculated).					
Underachieved in Accuracy	(N=28)	E	Accuracy	.356	.468*	.409*	.483**	.374	.479
Underachieved in Comprehension	(N=33)	F	Comprehension	.218	.142	.332	.137	.349	.449

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

significant at 5% level and .483, significant at 1% level, (Table VII, Items E-2, E-3, E-4). But among the comprehension underachievers, no statistically significant correlation was found between comprehension ability and achievement in any of the four subject areas tested.

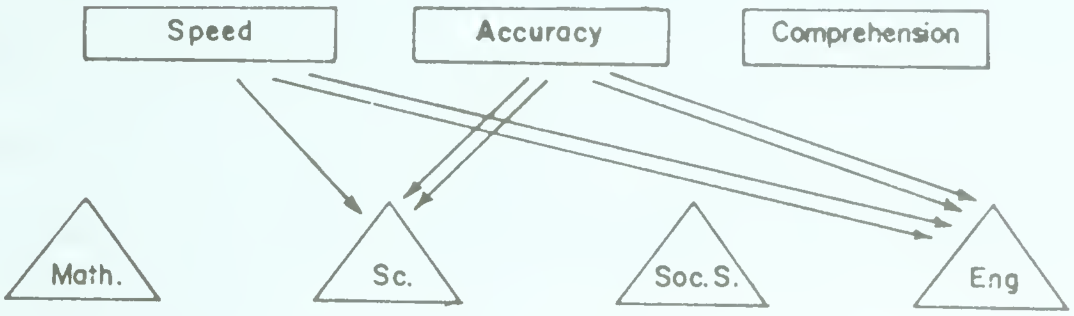
It was noted that in all instances, correlations between mathematics and the three oral reading abilities were found to be statistically non-significant, (Table VII, Column 1).

Fig. 6, is a graphic summary of the above findings. It shows that oral reading abilities, among Oral Reading Underachievers, were significantly related to achievement in some of the curriculum areas measured. With the underachievers in general, (Fig. 6-a), ability to read with speed, and the ability to read with accuracy, were found to be significantly related to achievement in social studies and in English. Of the three oral reading abilities, accuracy was found to be the most closely related to subject area achievement, and comprehension the least related. This pattern was approximated when the underachievers were sub-divided, (Figs. 6-b, -c, -d). And at no time was achievement in mathematics significantly related to any of the oral reading abilities.

FIGURE 6

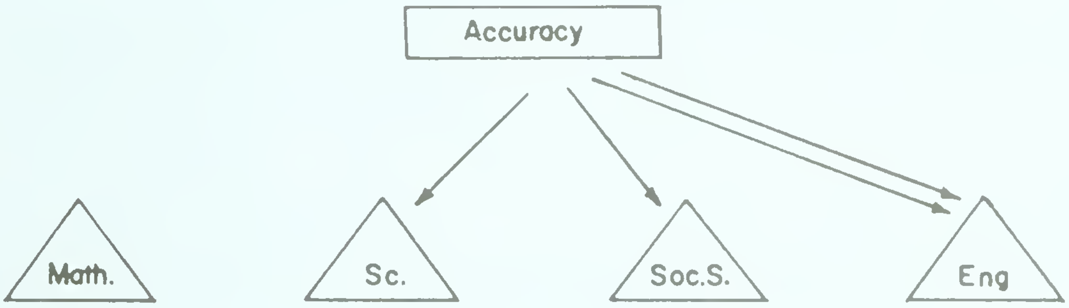
A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS BETWEEN ORAL READING ABILITIES AND CURRICULUM ACHIEVEMENT

(a) Total Group: Speed and accuracy were related to achievement in science and English



(b) Speed Underachievers: Number was too small

(c) Accuracy Underachievers: Accuracy, the underachieving ability, was related to achievement in science, social studies and English



(d) Comprehension Underachievers: Comprehension, the underachieving ability, was not related to achievement in the subject areas

→ r significant at 5% level

⇉ r significant at 1% level

UNDERACHIEVERS IN SILENT COMPREHENSION ABILITIES

In the following analysis the Underachievers in Silent Comprehension Abilities are first considered as a whole. They are also considered separately, depending on the area of underachievement, as underachievers in ability to derive main ideas, in ability to notice simple details, in ability to see complex, related ideas, in ability to draw inferences, and in ability to interpret the content.

1. Intercorrelations of Comprehension Abilities. In Table VIII, are presented the intercorrelations of comprehension abilities, as measured by Van Wagenen Analytical Reading Scales, of the six groups of Comprehension Abilities Underachievers mentioned above. With the underachievers considered as a whole, all intercorrelations between five comprehension abilities, with only two exceptions, were found to be statistically significant, ranging from .428 to .610, and significant at 1% level of confidence. The exceptions were the correlations between central thought and related ideas, related ideas and inferences. They were .256 and .314, and were statistically non-significant.

When the same underachievers were grouped according to specific area of underachievement, the comprehension abilities were again found to be closely inter-related, and the patterns of relationships became specific. With those who underachieved in related ideas, the area of underachievement, which was the ability to comprehend complex and related ideas, was found to be significantly related to all of the remaining comprehension skills. The

correlations ranged from .450 to .572, significant at 5% and 1% levels of confidence, (Table VIII, Items H-1, H-2, H-4, H-5). With the underachievers in interpretation, the area of underachievement, which was the ability to interpret content, was found to be significantly related to all remaining comprehension skills. Correlations ranged from .388 to .625, significant at 5% and 1% levels, (Table VIII, Items J-1, J-2, J-3, J-4). These two comprehension abilities mentioned above were found to be most complex, most involved with other comprehension abilities. With the simple details underachievers, the ability to notice simple details was found to exhibit a significant degree of relationship with only three other abilities, and they were the ability to comprehend related ideas, to draw inferences, and to interpret. With the underachievers in inferences, the area of underachievement, which was the ability to draw inferences, was found to be significantly related to only two of the remaining comprehension abilities, and they were the ability to interpret and the ability to derive main ideas. Among central thought underachievers, the ability to derive main ideas was found to be significantly related to also only two of the comprehension abilities: ability to draw inferences and to interpret. Correlations were .524 and .502, significant at 5% level of confidence, (Table VIII, Items F-4, F-5). Ability to make interpretation and to comprehend related ideas were noted to be most closely associated with other comprehension abilities, and ability to derive main ideas the least associated.

UNDERACHIEVERS IN SILENT COMPREHENSION ABILITIES: INTERCORRELATION OF SCORES IN SILENT COMPREHENSION ABILITIES

				1 Central Thought	2 Simple Details	3 Related Ideas	4 Infer- ences	5 Inter- pretation	r at 5%	r at 1%
All Under- achievers in Silent Comprehension Abilities	(N=38)	A	Central Thought	-	.477**	.256	.610**	.506**	.321	.413
		B	Simple Details	-	-	.534**	.550**	.582**	.321	.413
		C	Related Ideas	-	-	-	.314	.428**	.321	.413
		D	Inferences	-	-	-	-	.610**	.321	.413
		E	Interpretation	-	-	-	-	-	.321	.413
Under- achieved in Central Thought	(N=19)	F	Central Thought	-	.288	.411	.524*	.502*	.456	.575
Under- achieved in Simple Details	(N=15)	G	Simple Details	.507	-	.518*	.564*	.677**	.514	.641
Under- achieved in Related Ideas	(N=22)	H	Related Ideas	.450*	.571*	-	.572**	.538**	.423	.537
Under- achieved in Inferences	(N=14)	I	Inferences	.700**	.444	.113	-	.559*	.532	.661
Under- achieved in Interpretation	(N=28)	J	Interpretation	.388*	.625**	.523**	.596**	-	.374	.479

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

Figs. 7 and 8, are graphic summaries of the above findings, and they illustrate the close inter-relationships among the silent comprehension abilities. With the Comprehension Abilities Underachievers in general, (Fig. 7), the five comprehension abilities were found to be closely inter-related. This pattern of close relationships was evidenced and became more specific when the underachievers were sub-divided according to specific area of underachievement, (Fig. 8-a, -b, -c, -d, -e). In each instance the underachieving ability was significantly related to two or more of the remaining comprehension abilities. And an underachievement in interpretation or in comprehending related ideas was the most complex, with the underachieving ability strongly associated with all of the remaining abilities, and ability to derive main ideas the least associated.

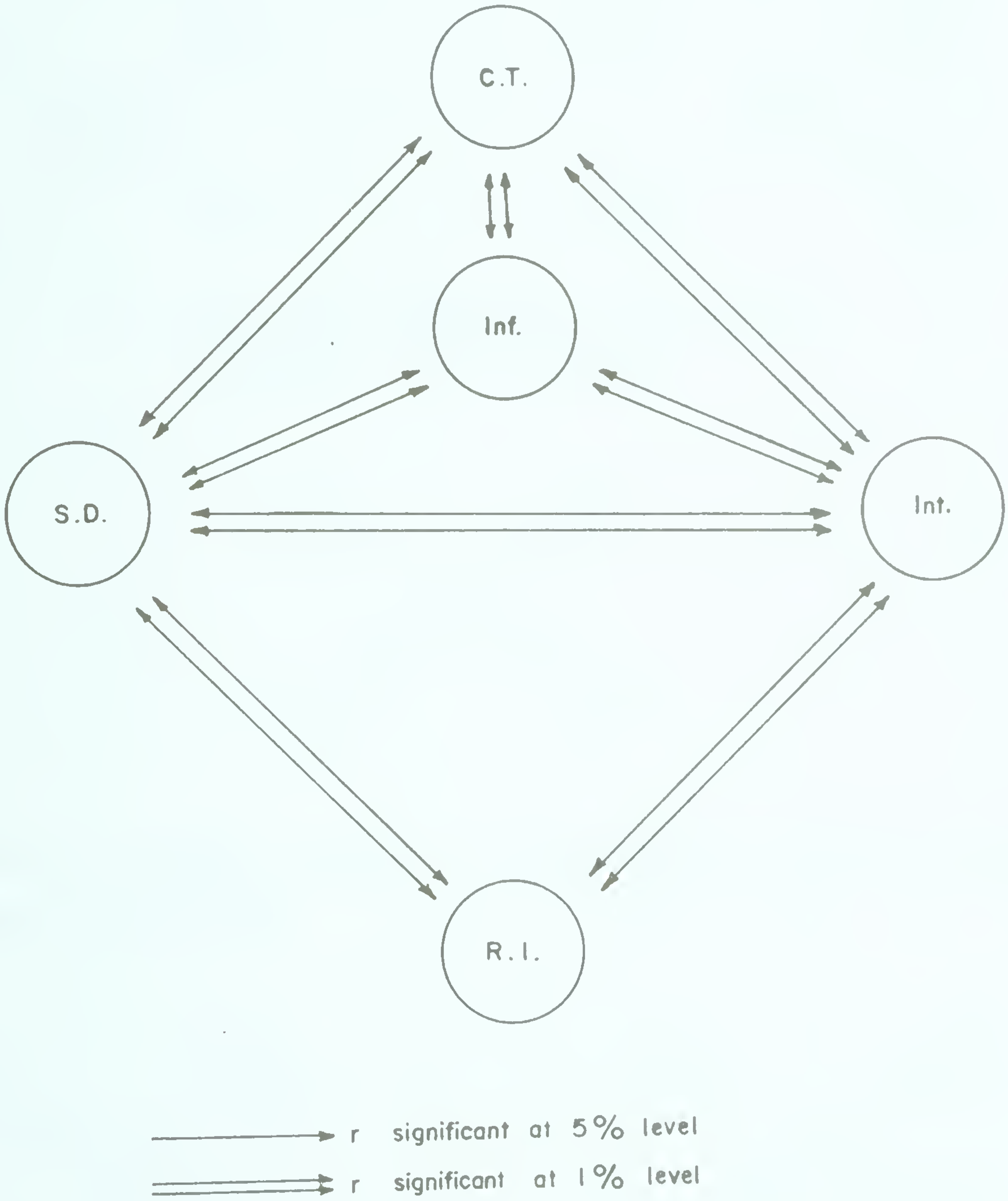
2. Intercorrelation Between Scores in Silent Comprehension Abilities and Scores in Reading Aptitudes. In Table IX, are presented the intercorrelations between scores in silent comprehension abilities and scores in reading aptitudes, the latter measured by Monroe-Sherman Reading Aptitude Tests. With underachievers considered as a whole, four of the five comprehension abilities, the exception being the ability to derive main ideas, were found to exhibit a significant degree of relationship with at least one visual or one auditory aptitude test.

This pattern, with strong emphasis on the relationship between comprehension abilities and visual or auditory tests, was found to be approximated when the underachievers were sub-divided, and the

FIGURE 7

A GRAPHIC SUMMARY OF INTERCORRELATIONS OF
SILENT COMPREHENSION ABILITIES

AMONG TOTAL GROUP OF COMPREHENSION UNDERACHIEVERS

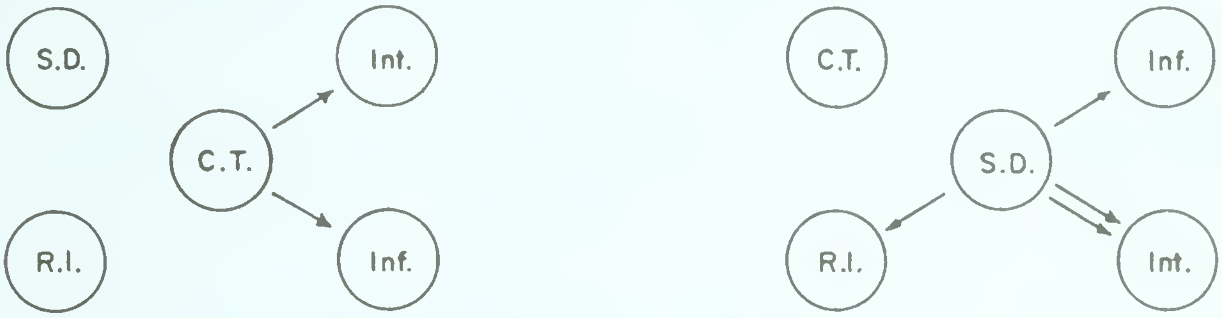


C.T.	Central Thought	Inf.	Inferences
S.D.	Simple Details	Int.	Interpretation
R.I.	Related Ideas		

FIGURE 8

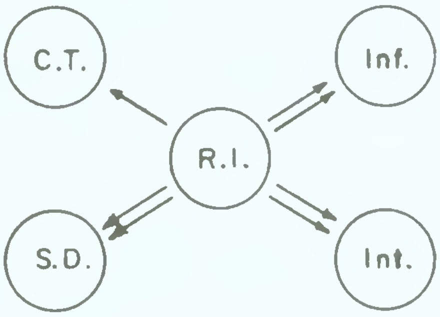
A GRAPHIC SUMMARY OF INTERCORRELATIONS OF SILENT COMPREHENSION ABILITIES

AMONG SUB-GROUPS OF COMPREHENSION UNDERACHIEVERS

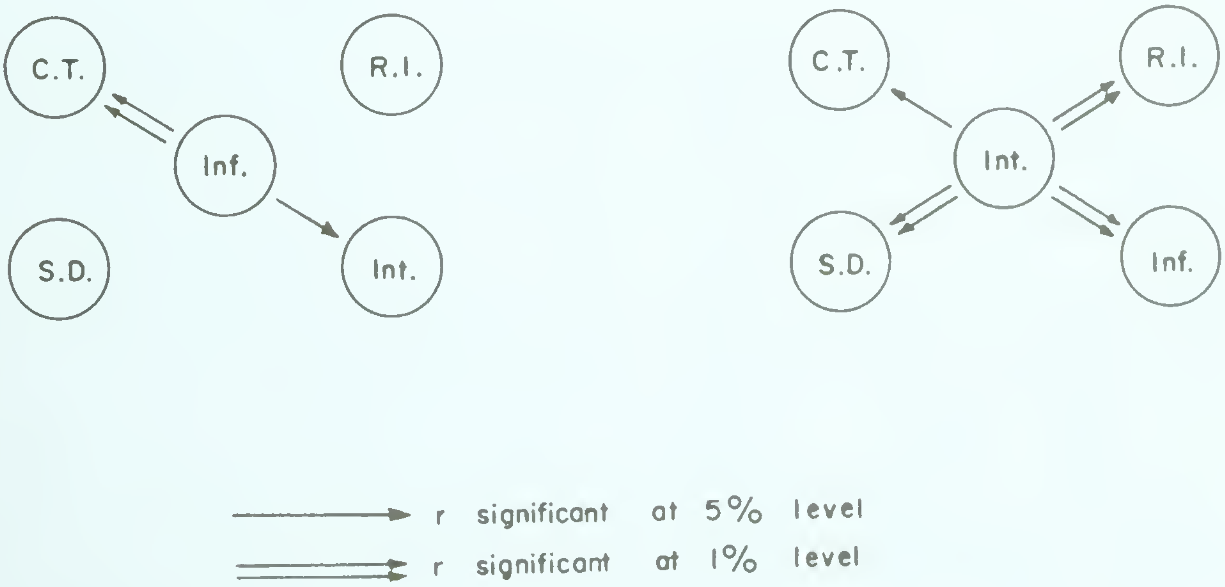


(a) Underachievers in Central Thought: Central thought was related to 2 other abilities

(b) Underachievers in Simple Details: Simple details was related to 3 other abilities



(c) Underachievers in Related Ideas: Related ideas was related to all 4 of the abilities



(d) Underachievers in Inferences: Inferences was related to 2 other abilities

(e) Underachievers in Interpretation: Interpretation was related to all 4 of the abilities

individual patterns became ever more specific. With underachievers in inferences, where ability to draw inferences was the area of underachievement, inferences was found to be highly significantly related to visual form memory and auditory orientation-and-discrimination, both of these demanded discrimination of details. The correlations were found to be .689, and .692, both significant at 1% level of confidence, (Table IX, Items I-2, I-4). With simple details underachievers, correlations between ability to see simple details and these two aptitudes of discrimination mentioned above were equally significant. With underachievers in interpretation, correlations between ability to interpret and these same two aptitudes were again significant, though to a lesser extent, being at 5% level of confidence, (Table IX, Items G-2, G-4, J-2, J-4). It seemed that these three comprehension abilities, ability to draw inferences, to see simple details, to interpret, were all associated with aptitudes of discrimination of details. With underachievers in related ideas, the ability to comprehend complex, related ideas was found to be significantly related to both visual letter memory and visual form memory, both aptitudes demanding visual memory. The correlations were found to be .663, and.556 both significant at 1% level. With underachievers in central thought, the underachieving ability, which was the ability to see and organize the main ideas, was found to be significantly related to visual letter memory, the aptitude to remember the proper sequence, arrangement of visual symbols. Correlation was found to be .518, significant at 5% level of confidence.

UNDERACHIEVERS IN SILENT COMPREHENSION ABILITIES: INTERCORRELATIONS BETWEEN SCORES IN SILENT COMPREHENSION ABILITIES AND SCORES IN READING APTITUDE TESTS

			1	2	3	4	5	6	7		
			Visual		Auditory		Motor				
			Letter Memory	Form Memory	Letter Memory	Orientation and Discrimination	Copy Text	Cross out Letters	Full Score	r at 5%	r at 1%
All Underachievers in Silent Comprehension Abilities (N=38)	A	Central Thought	.309	.207	.251	.247	.023	.061	.268	.321	.413
	B	Simple Details	.362*	.322*	.224	.317	.277	.221	.461**	.321	.413
	C	Related Ideas	.544**	.216	.216	.185	.340*	.183	.452**	.321	.413
	D	Inferences	.313	.416**	.416**	.432**	.304	.207	.510**	.321	.413
	E	Interpretation	.370*	.290	.301	.421**	.228	.128	.442**	.321	.413
Underachieved in Central Thought (N=19)	F	Central Thought	.518*	.343	.228	.380	.231	.325	.495*	.456	.575
Underachieved in Simple Details (N=15)	G	Simple Details	.401	.830**	.291	.667**	.097	.065	.583*	.514	.641
Underachieved in Related Ideas (N=22)	H	Related Ideas	.663**	.556**	.291	.194	.360	.045	.487*	.423	.537
Underachieved in Inferences (N=14)	I	Inferences	.338	.689**	.290	.692**	.064	.170	.526	.532	.661
Underachieved in Interpretation (N=28)	J	Interpretation	.325	.402*	.126	.433*	.252	.228	.506**	.374	.479

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

It was noted that eight of the ten correlations between aptitude full score and comprehension abilities were statistically significant. The exceptions were the correlations between the ability to derive main ideas and total aptitude, in the total group of underachievers, and between ability to draw inferences and total aptitude, in the inferences underachievers, (Table IX, Items A-7, I-7). Both correlations were found to be statistically non-significant.

Figs. 9 and 10, form a graphic summary of the above findings. They illustrate that among Silent Comprehension Abilities Underachievers, comprehension abilities were found to be closely associated with some, though not all, of the reading aptitude components. With the underachievers in general, (Fig. 9), all comprehension abilities, except central thought, were significantly related to one or more than one of the visual or auditory aptitudes. This pattern of association was evident, and became even more specific, when the same underachievers were sub-divided, (Fig. 10-a, -b, -c, -d, -e). In each instance the underachieving ability was found to be significantly related to a particular combination of reading aptitudes. And of the five abilities, inferences, related ideas, and simple details were found to be the most closely associated with the aptitudes, and central thought the least associated.

3. Intercorrelation Between Scores in Silent Comprehension Abilities and Scores in Four Academic Subjects. In Table X, are presented the intercorrelations between scores in reading comprehension abilities and scores in four major subjects, as measured by

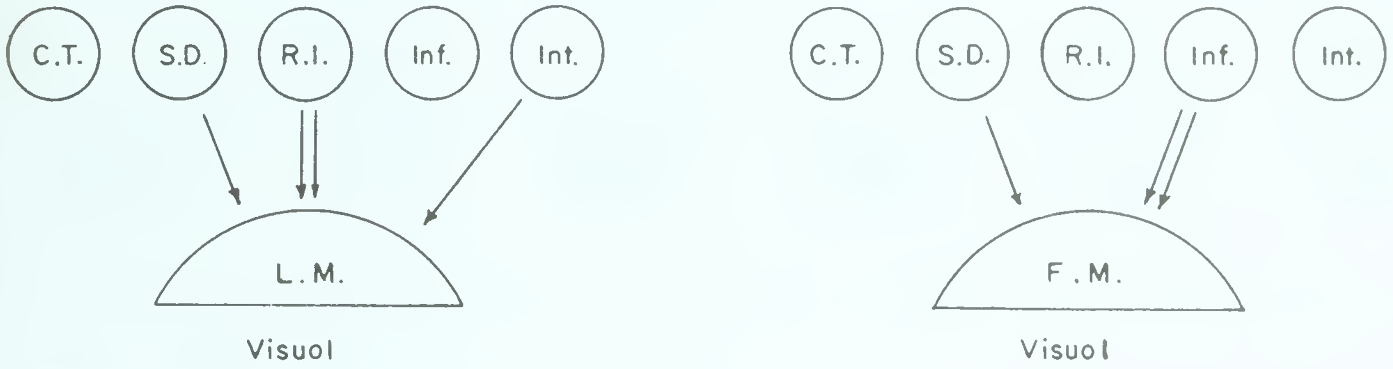
FIGURE 9

A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS
BETWEEN SILENT COMPREHENSION ABILITIES
AND READING APTITUDES

FOR TOTAL GROUP OF COMPREHENSION UNDERACHIEVERS

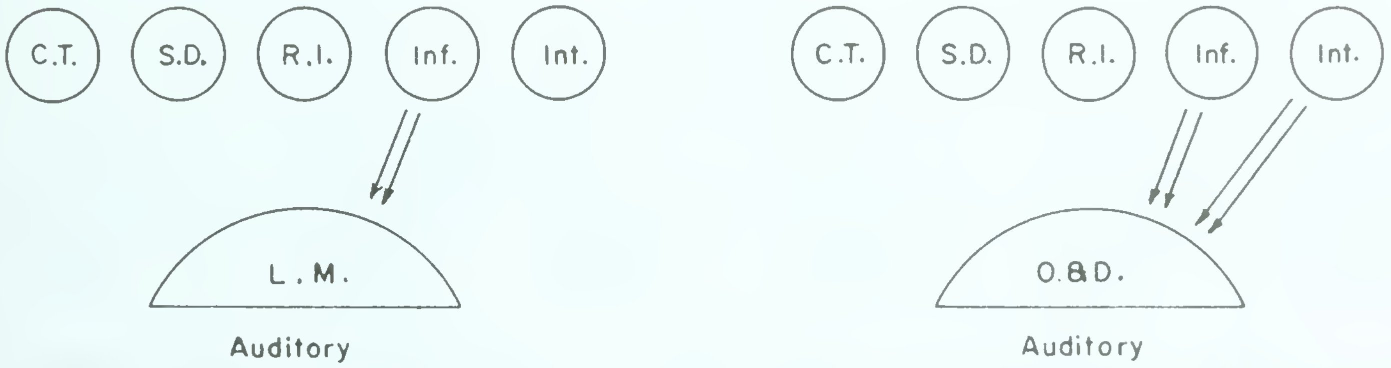
(a) Visual letter memory was related to 3 comprehension abilities

(b) Visual form memory was related to 2 comprehension abilities



(c) Auditory letter memory was related to 1 comprehension ability

(d) Auditory orientation-discrimination was related to 2 comprehension abilities



(e) Motor copy-text was related to 1 comprehension ability

(f) Motor cross-letters was related to none of the comprehension abilities

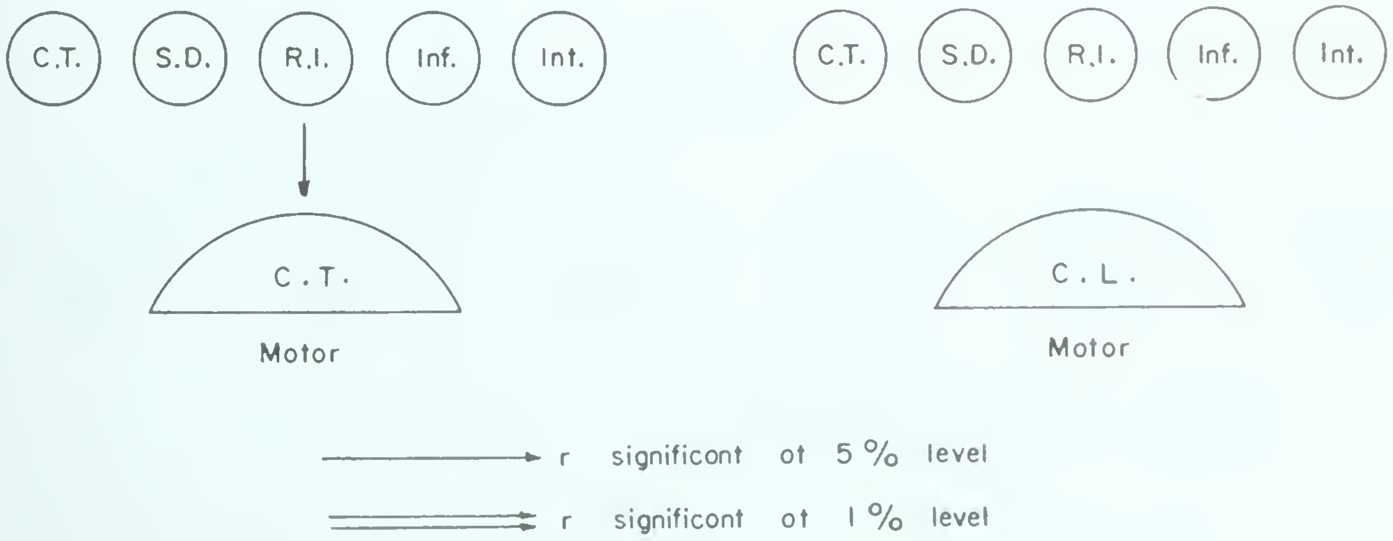
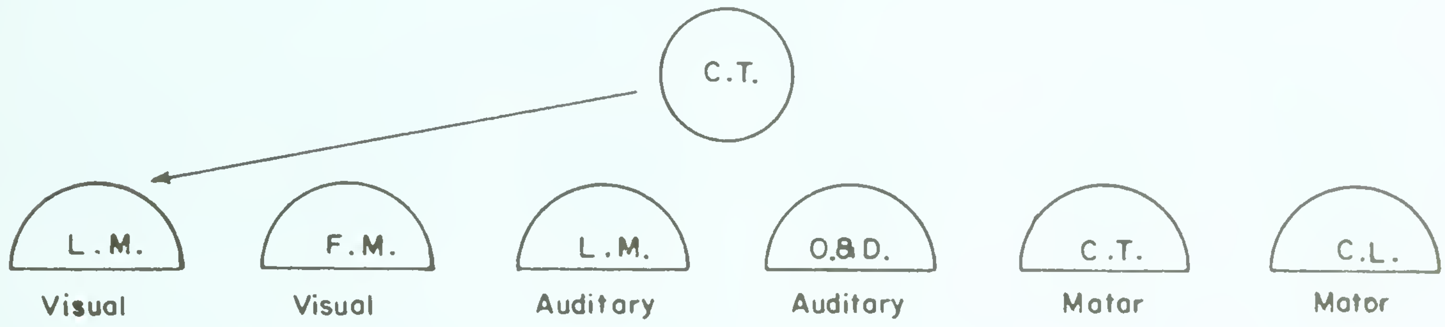


FIGURE 10

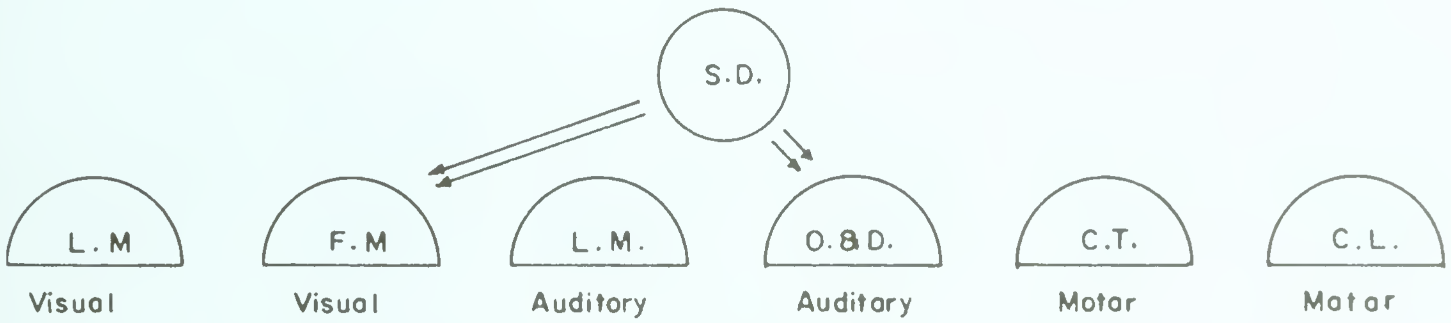
A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS BETWEEN SILENT COMPREHENSION ABILITIES AND READING APTITUDES

FOR SUB-GROUPS OF COMPREHENSION UNDERACHIEVERS

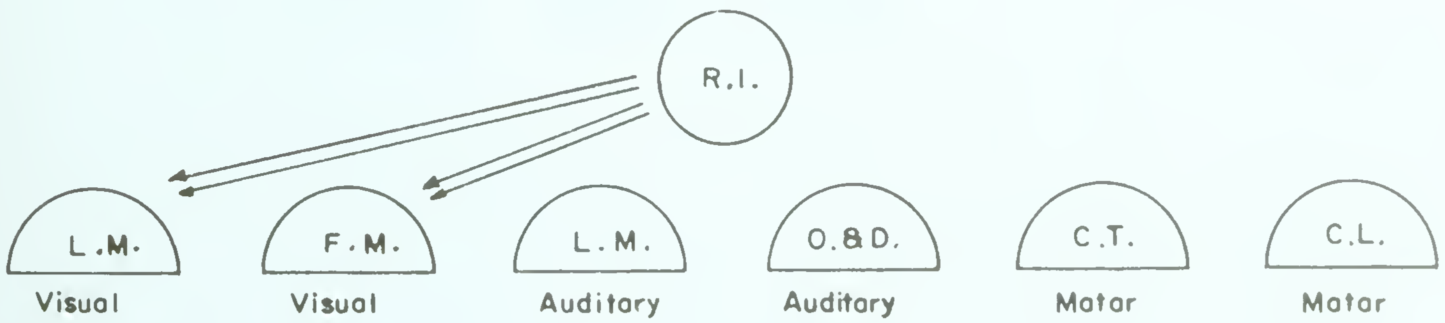
(a) Underachievers in Central Thought: Central thought, the underachieving ability, was related to visual letter memory



(b) Underachievers in Simple Details: Simple details, the underachieving ability, was related to aptitudes demanding discrimination of details



(c) Underachievers in Related Ideas: Related ideas, the underachieving ability, was related to aptitudes demanding visual memory

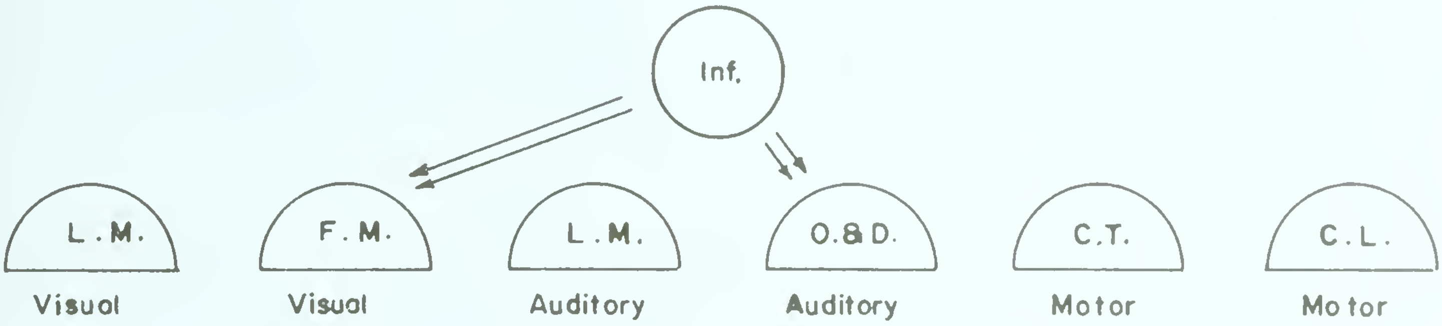


(CONTINUED ON NEXT PAGE)

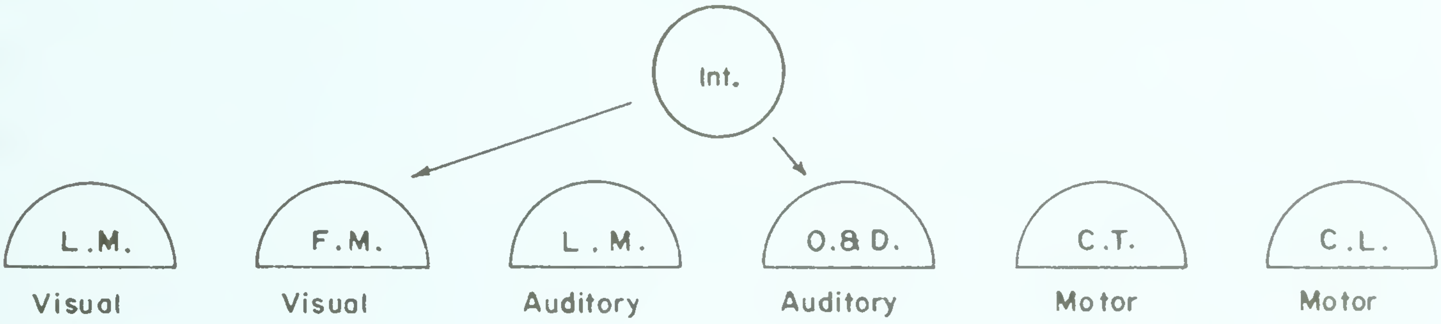
FIGURE 10

(CONTINUED)

(d) Underachiers in Inferences: Inferences, the underachieving ability, was related to aptitudes demanding discrimination of details. Pattern was identical to (b) Simple Details



(e) Underachievers in Interpretation: Interpretation, the underachieving ability, was related to aptitudes demanding discrimination of details. Pattern was similar to (b) Simple Details and (d) Inferences



→ r significant at 5 % level

⇉ r significant at 1 % level

their full scores in Cooperative Mathematics Test, Cooperative Science Test, Cooperative Social Studies Test, Cooperative English Test. With the underachievers considered as a whole, correlations between each of the comprehension abilities and each of the four subjects were found to be statistically significant at 1% and 5% levels of confidence with only one exception. The ability to comprehend complex, related ideas was found not significantly related to achievement in mathematics. The correlation was .178, and was found to be statistically non-significant, (Table X, Items C-1).

This close relationship between the reading comprehension abilities and achievement in subject areas was again evident, and the patterns emerged, when the underachievers were sub-divided. With the underachievers in interpretation, where ability to interpret content was the underachieving ability, interpretation was found to be highly significantly related to all of the four subject areas: mathematics, science, social studies, and English. The respective correlations were .540, .495, .547, and .626, all significant at 1% level, (Table X, Items J-1, J-2, J-3, J-4). With underachievers in simple details, the ability to notice simple details in text was also found to be significantly related to all four subjects. It was significantly related to mathematics and science, and highly significantly related to social studies and English. The correlations were .540, .520, significant at 5% level, and .656, and .738, significant at 1% level, (Table X, Items G-1, G-2, G-3, G-4). With related ideas underachievers, the ability to comprehend complex, related ideas was found to be highly

UNDERACHIEVERS IN SILENT COMPREHENSION ABILITIES: INTERCORRELATION BETWEEEN SCORES IN SILENT COMPREHENSION ABILITIES AND SCORES IN DIFFERENT ACADEMIC SUBJECTS

				1 Mathematics	2 Science	3 Social Studies	4 English	r at 5%	r at 1%
All Under-achievers in Silent Comprehension Abilities	(N=38)	A	Central Thought	.518**	.620**	.514**	.556**	.321	.413
		B	Simple Details	.545**	.556**	.586**	.658**	.321	.413
		C	Related Ideas	.178	.414**	.361*	.645**	.321	.413
		D	Inferences	.673**	.689**	.589**	.729**	.321	.413
		E	Interpretation	.472**	.460**	.547**	.593**	.321	.413
Under-achieved in Central Thought	(N=19)	F	Central Thought	.383	.749**	.542*	.578**	.456	.575
Under-achieved in Simple Details	(N=15)	G	Simple Details	.540*	.520*	.656**	.738**	.514	.641
Under-achieved in Related Ideas	(N=22)	H	Related Ideas	.333	.648**	.560**	.699**	.423	.537
Under achieved in Inferences	(N=14)	I	Inferences	.605*	.587*	.504	.714**	.532	.661
Under achieved in Interpretation	(N=28)	J	Interpretation	.540**	.495**	.547**	.626**	.374	.479

*Significant at the 5 per cent level.

**Significant at the 1 per cent level.

significantly related to three subject areas, science, social studies, and English. The correlations were all significant at 1% level. But the ability to comprehend related ideas was again found not significantly correlated with mathematics. With underachievers in central thought, the ability to derive main ideas was found to be highly significantly related to science and English, and significantly related to social studies. With the inferences underachievers, the ability to draw inferences was found to be significantly related to mathematics, science, and highly significantly related to English. The correlations were .605, .587, significant at 5% level, and .714, significant at 1% level.

Of the four curriculum areas measured, achievement in English was found to be the most closely associated with the reading comprehension abilities and mathematics the least. But all four were found highly associated with the comprehension abilities in general.

Figs. 11 and 12, form a graphic summary of the above findings. They show that silent comprehension abilities were found to be highly related to achievement in curriculum areas, among Silent Comprehension Abilities Underachievers. With the underachievers in general (Fig. 11), comprehension abilities were found to be significantly related to achievement in all four areas. The only exception was that ability to comprehend complex related ideas was found not significantly related to mathematics. With the underachievers subdivided, specific patterns of association emerged. In each instance the underachieving ability was found to be significantly related to curriculum achievement. Of the five abilities, interpretation was

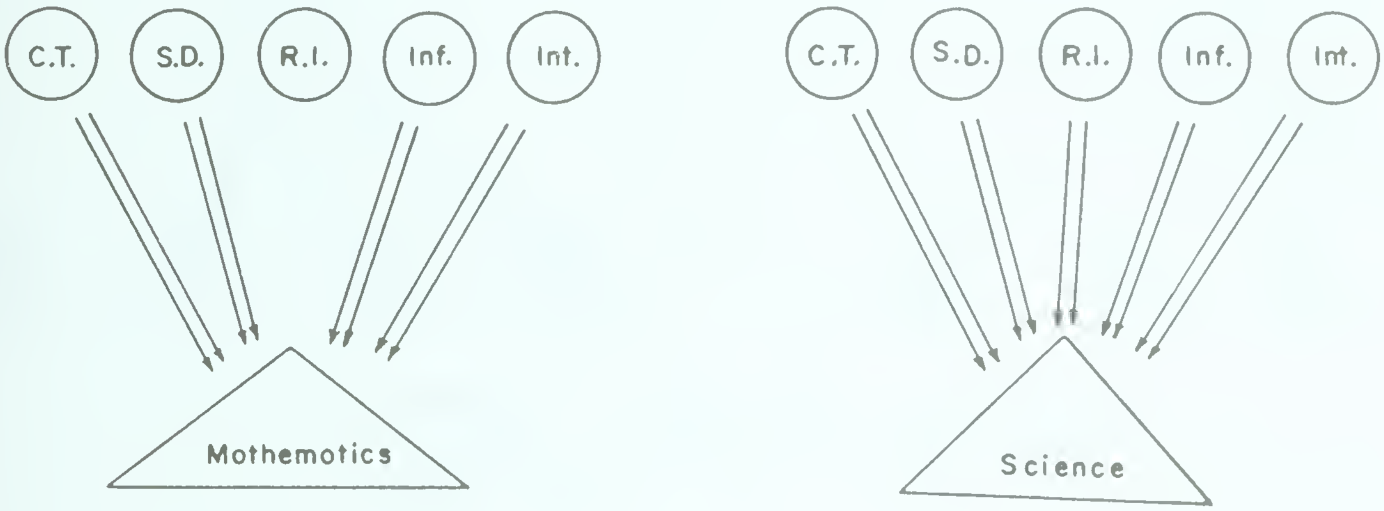
FIGURE II

A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS BETWEEN SILENT COMPREHENSION ABILITIES AND CURRICULUM ACHIEVEMENT

FOR TOTAL GROUP OF COMPREHENSION UNDERACHIEVERS

(a) Comprehension abilities were related, with only one exception, to achievement in mathematics

(b) Comprehension abilities were related, with no exception, to achievement in science



(c) Comprehension abilities were related, with no exception, to achievement in social studies

(d) Comprehension abilities were related, with no exception, to achievement in English

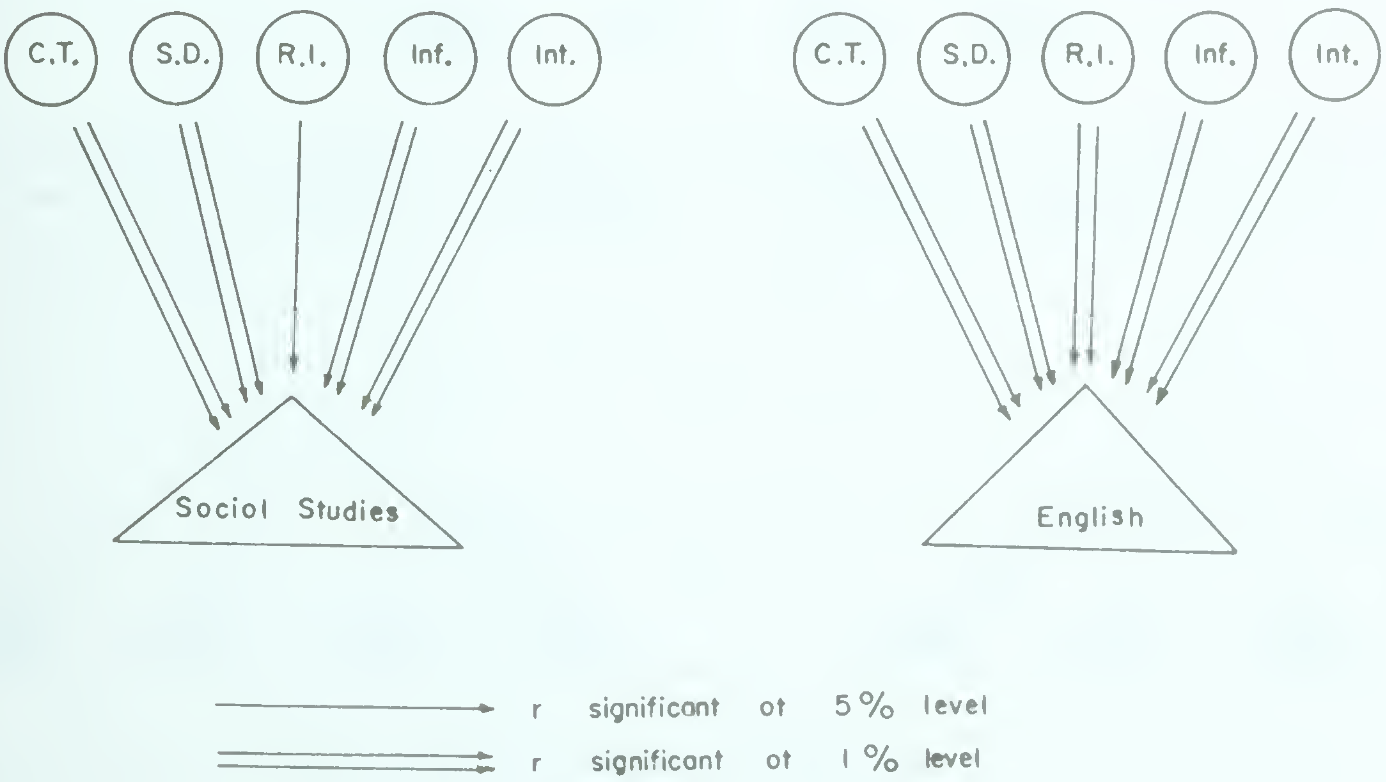
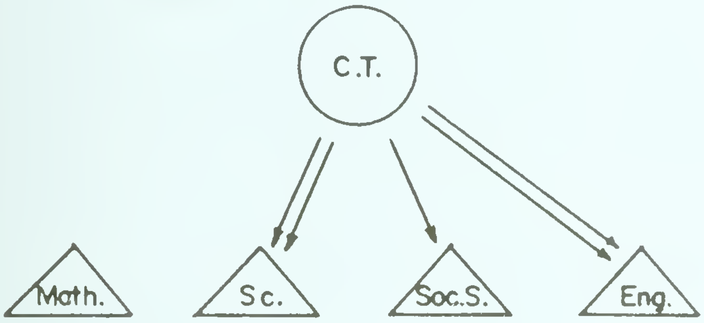


FIGURE 12

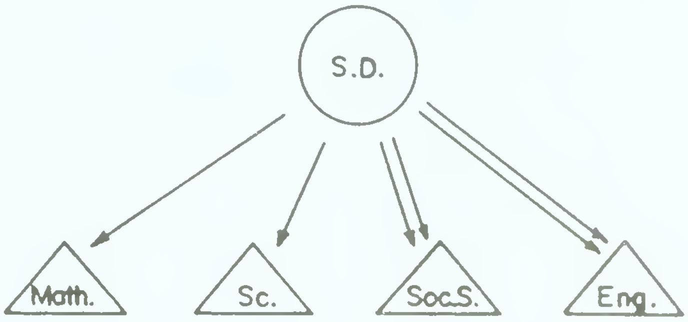
A GRAPHIC SUMMARY OF SIGNIFICANT RELATIONSHIPS BETWEEN SILENT COMPREHENSION ABILITIES AND CURRICULUM ACHIEVEMENT

FOR SUB-GROUPS OF COMPREHENSION UNDERACHIEVERS

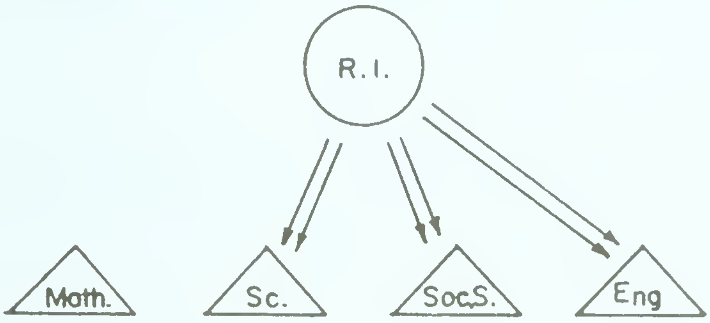
(a) Underachievers in Central Thought: Central thought was related to achievement in science, social studies, English



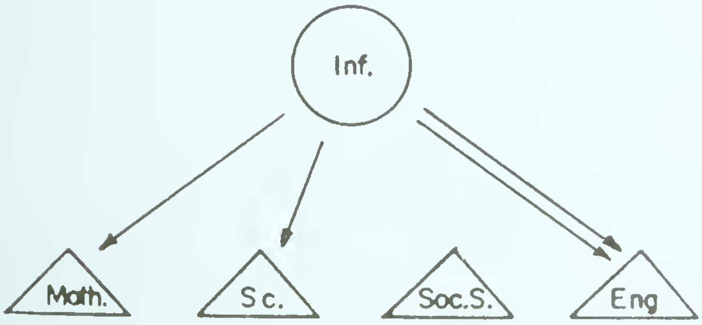
(b) Underachievers in Simple Details: Simple details was related to achievement in all four subjects



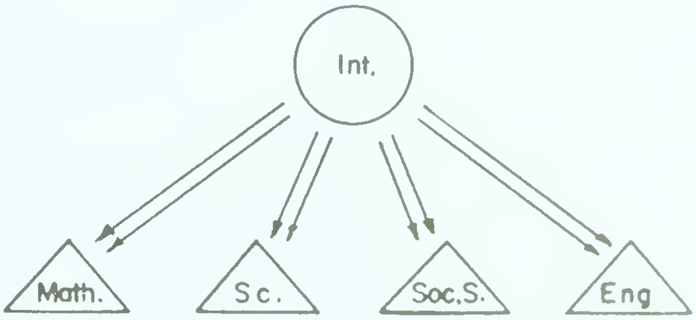
(c) Underachievers in Related Ideas: Related ideas was related to achievement in science, social studies, English



(d) Underachievers in Inferences: Inferences was related to achievement in mathematics, science, English



(e) Underachievers in Interpretation: Interpretation was related to achievement in all four subjects



→ r significant at 5% level

⇉ r significant at 1% level

found to be most closely associated with academic achievement as measured, and inferences the least associated.

SUMMARY OF FINDINGS

Nine sectional graphic summaries have been incorporated into the main text of the data analysis on previous pages. The following is an attempt to review the main trends of the findings. Each group of underachievers is considered separately.

1. Silent Reading Underachievers. The three silent reading abilities, speed, vocabulary, and comprehension, were found to be closely inter-related. Speed and vocabulary were significantly correlated. Comprehension was the most complex. With comprehension underachievers, functional level in comprehension was found to be significantly related to both reading speed and vocabulary. Each of the three abilities was found to be significantly related to a particular auditory or visual aptitude, or a particular combination of these aptitudes, though not to all of the aptitudes. And the silent reading abilities were found not closely associated with subject area achievement as measured. Speed was found to be significantly related to achievement in English and in social studies. These were the only significant relationships found.

2. Oral Reading Underachievers. The three oral reading abilities, speed, accuracy and comprehension, were found to be closely inter-related. Accuracy was found to be significantly related to speed and comprehension, and comprehension to speed and accuracy. All three oral abilities were found to be significantly related to a particular auditory or visual aptitude or a particular

combination of these aptitudes. With regard to academic achievement, ability to read with accuracy was found to be significantly related to achievement in science, in social studies and in English. These were the only significant relationships found.

3. Silent Comprehension Abilities Underachievers. The five comprehension abilities were found to be very closely inter-related. Yet they were found to maintain their distinct individuality and form their own pattern of association when considered with respect to reading aptitudes and subject area achievement. Ability to comprehend related ideas was found to be the most complex of the abilities as it was highly significantly related to all of the four comprehension abilities, and ability to derive main ideas, to draw inferences, the least. All of the five abilities were found to be significantly associated with a particular visual or auditory aptitude or a particular combination of these aptitudes. And comprehension abilities in general were found to be highly significantly related to achievement in the subject areas measured, with one distinct exception. The ability to comprehend complex, related ideas was found not significantly related to achievement in mathematics.

CHAPTER V

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

This study has attempted to assess three groups of reading underachievers, to investigate the interrelationship of their reading abilities, their performance in certain aptitudes, and their achievement in major academic subjects.

These are complex problems and the present study has many limitations. However certain hypotheses have been tested and statistical data support what appear to be valid conclusions.

The term 'correlates' as defined within this experiment does not imply a cause and effect relationship. But efforts have been made to reveal significant relationships, and to establish patterns of such relationships.

It differs from previous studies in that specific reading underachievement rather than general reading retardation is investigated.

CONCLUSIONS

HYPOTHESIS I

> There is no significant relationship between the silent reading abilities of speed, vocabulary and comprehension, among the Silent Reading Underachievers.

Correlations between the scores of the silent reading abilities of speed, vocabulary and comprehension, as measured by the Gates Reading Survey Tests among the Silent Reading Underachievers, were positive but with varying degrees of significance.

Silent reading speed and silent reading vocabulary scores

reached a significant relationship both among the silent speed underachievers and the silent vocabulary underachievers. Silent reading vocabulary and silent reading comprehension scores showed a highly significant correlation among the silent comprehension underachievers, but failed to reach a significant correlation among the silent vocabulary underachievers. The relationship between silent speed and silent comprehension reached a significant level with the silent comprehension underachievers, but failed to do so among the silent speed underachievers.

With the total group of silent reading underachievers, correlations between their silent vocabulary scores and silent comprehension scores reached a significant level. But their silent reading speed scores failed to show a significant degree of correlation with silent vocabulary scores and with silent comprehension scores.

Conclusions from Hypothesis I

It can be concluded that there was significant relationship between the silent reading abilities of speed, vocabulary and comprehension, as measured by the *Gates Reading Survey Tests*, among the Silent Reading Underachievers of this study.

It appears that among those limited in vocabulary or in silent reading speed, their reading speed is significant in its relationship with silent reading vocabulary. But they still manage to comprehend. With those underachieving in silent reading comprehension, they tend to be limited in their vocabulary and their silent reading speed as well.

HYPOTHESIS II

> There is no significant relationship between the underachieving reading ability and the reading aptitudes, among the Silent Reading Underachievers.

Correlations between scores in the underachieving reading ability and scores in each of the reading aptitudes measured by the Monroe-Sherman Reading Aptitude Tests were some positive and some negative. The positive correlations exhibited varying degrees of significance, while the negative correlations were all statistically non-significant.

The silent reading speed scores among the silent speed underachievers showed a significant correlation with scores in the visual aptitude test of form memory and auditory aptitude for orientation-and-discrimination. The silent reading vocabulary scores reached a significant relationship with scores in the aptitude test of visual letter memory, among the silent vocabulary underachievers. With the underachievers in silent reading comprehension, their silent comprehension scores reached a highly significant level of relationship with scores in the visual aptitude tests of letter memory and form memory and reached a significant degree of relationship with scores in the motor aptitude test of copying-text.

With the total group of silent reading underachievers, their silent reading abilities attained a significant level of relationship with the visual aptitude of letter memory, and auditory aptitudes of letter memory and orientation-and-discrimination, but failed to reach a significant level of correlation with any of the motor aptitudes.

Conclusions from Hypothesis II

It can be concluded that the silent reading abilities of speed, vocabulary and comprehension, as measured by the Gates Reading Survey Tests, showed a significant level of correlation with visual and auditory aptitudes measured by the Monroe-Sherman Reading Aptitude Tests, among the Silent Reading Underachievers of the present study. But it cannot be concluded that the same reading abilities reached similarly significant level of relationship with the motor aptitudes measured by the same aptitude tests.

It would appear that silent reading speed is significant in its relationship with the ability to discriminate with accuracy visually and auditorily. And silent reading vocabulary is significant in its relationship with the visual aptitude to remember the proper sequence of simple letter symbols. The ability to comprehend in a silent reading situation also shows a close relationship with the kind of visual-muscular co-ordination involved in a manual copying task, and with aptitudes of visual memory.

HYPOTHESIS III

> There is no significant relationship between the underachieving reading ability and achievement in English, social studies, science and mathematics, among the Silent Reading Underachievers.

Correlations between the underachieving reading ability and achievement in English, social studies, science and mathematics, as measured by the Cooperative Achievement Tests among the Silent

Reading Underachievers, were some positive and some negative. Only two correlations reached a significant level and they were both positive correlations.

The silent reading speed scores among the silent speed underachievers showed a significant correlation with their scores in social studies, but failed to reach a significant level with scores in any of the remaining academic subjects measured. The silent vocabulary scores among the silent vocabulary underachievers, and the silent reading comprehension scores among the silent comprehension underachievers, both failed to reach a significant degree of relationship with scores in any of the four academic subjects.

Among the total group of silent reading underachievers, only their scores in silent reading speed reached a significant degree of correlation with scores in an academic subject, and only with scores in English.

Conclusions from Hypothesis III

It can be concluded that the silent reading abilities of speed, vocabulary and comprehension as measured by the Gates Reading Survey Tests, did not show a high degree of relationship with achievement in the subject areas as measured by the Cooperative Achievement Tests, among the Silent Reading Underachievers of the present investigation. Of the three silent reading abilities measured, only silent reading speed showed a significant correlation with achievement in social studies and in English.

It indicates that either there is in general low relationship

between silent reading abilities and academic achievement among these underachievers, or the relationship is too subtle to be detected by the measures used.

HYPOTHESIS IV

> There is no significant relationship between the oral reading abilities of speed, accuracy and comprehension, among the Oral Reading Underachievers.

Correlations between scores of the oral reading abilities of speed, accuracy and comprehension, as measured by the Neale Analysis of Reading Ability among the Oral Reading Underachievers were positive in all cases but with varying degrees of significance.

The relationship between oral reading accuracy and oral reading comprehension was significant among the oral accuracy underachievers and was highly significant among the oral comprehension underachievers. Oral reading speed reached a highly significant correlation with oral accuracy among the oral accuracy underachievers, and showed a significant relationship with oral comprehension among the oral comprehension underachievers.

With the total group of oral reading underachievers, their oral reading accuracy showed a very high degree of relationship both with oral reading speed and oral comprehension. But the relationship between oral reading speed and oral comprehension failed to reach significance.

Conclusions from Hypothesis IV

It can be concluded that the oral reading abilities of speed, accuracy and comprehension, as measured by the Neale Analysis of

Reading Ability among the Oral Reading Underachievers of this investigation, showed a significant relationship.

The three oral reading abilities are closely inter-related. Those having a limitation in their oral comprehension ability, tend to be limited in their reading speed and reading accuracy, while those limited in their oral reading accuracy, tend to be limited in the remaining areas of speed and comprehension. It suggests that one of the factors, possibly reading accuracy, in terms of faulty word-recognition, impedes both comprehension and reading speed, among these underachievers in oral reading.

HYPOTHESIS V

> There is no significant relationship between the underachieving reading ability and the reading aptitudes, among the Oral Reading Underachievers.

Correlations between scores in the underachieving reading ability and scores in each of the reading aptitudes measured by the Monroe-Sherman Reading Aptitude Tests, were some positive and some negative. The positive correlations showed varying degrees of significance, while the negative correlations were all statistically non-significant.

Among the oral accuracy underachievers, their scores in oral accuracy attained a highly significant correlation with scores in visual aptitude tests of letter memory and form memory, and reached a significant level of relationship with their scores in the auditory aptitude test of letter memory. The oral reading comprehension showed a very high degree of correlation with two visual aptitude tests of letter memory and form memory, and reached a significant

relationship with the motor test of copying-text, among the oral reading underachievers.

With the total group of oral reading underachievers, their oral reading abilities reached significant correlation with visual aptitudes of letter memory, form memory and the auditory aptitude of letter memory. But scores in the auditory aptitude test of orientation-and-discrimination failed to reach a significant level of relationship with any of the three oral reading abilities measured.

Conclusions from Hypothesis V

It can be concluded that the oral reading abilities of speed, accuracy and comprehension as measured by the Neale Analysis of Reading Ability exhibited a significant degree of relationship with the visual aptitudes of letter memory and form memory, and the auditory aptitude of letter memory, as measured by the Monroe-Sherman Reading Aptitude Tests, among the Oral Read Underachievers of this study. But it cannot be concluded that these same oral reading abilities reached similarly significant relationship with the auditory aptitude of orientation-and-discrimination, or the motor aptitudes.

It appears that oral reading accuracy ability is significant in its relationship with visual and auditory memory, and oral reading comprehension is significant in its relationship with visual memory and the kind of visual-muscular coordination involved in copying from text manually. It is to be noted that the aptitude of auditory orientation-and-discrimination shows only a

slight relationship with oral reading abilities among the Oral Reading Underachievers of the study. It is possible that these students failed to apply their auditory discrimination ability to their oral reading.

HYPOTHESIS VI

> There is no significant relationship between the underachieving reading ability and achievement in English, social studies, science and mathematics, among the Oral Reading Underachievers.

Correlations between the underachieving reading ability and achievement in English, social studies, science and mathematics, as measured by the Cooperative Achievement Tests among the Oral Reading Underachievers, were all positive with varying degrees of significance.

The oral accuracy scores showed significant correlations with scores in science, social studies, and reached a highly significant relationship with scores in English, but failed to reach a significant level of relationship with scores in mathematics, among the oral accuracy underachievers. With the oral comprehension underachievers, the scores in oral comprehension failed to reach a significant degree of relationship with achievement in any of the academic subjects measured.

Among the total group of oral reading underachievers, their oral reading accuracy attained a significant relationship with their scores in English and in science, but their oral reading comprehension ability failed to reach a significant level of relationship with achievement in any of the academic subjects measured.

Conclusions from Hypothesis VI

It can be concluded that oral reading accuracy, as measured by the Neale Analysis of Reading Ability showed a significant degree of relationship with achievement in English, social studies and science, as measured by the Cooperative Achievement Tests, among the Oral Reading Underachievers of the present study. But it cannot be concluded that oral reading comprehension ability reached a significant relationship with academic achievement as measured among the same underachievers.

It appears that those who are inaccurate in their oral reading do not necessarily underachieve in mathematics, though they might be limited in other subject areas. It also appears that the ability to comprehend and retain information in an oral reading situation shows only a slight relationship with academic achievement as measured by tests involving silent reading. Students who are limited in oral comprehension are not necessarily handicapped in their academic achievement thus measured.

HYPOTHESIS VII

> There is no significant relationship between the complex comprehension abilities of central thought, simple details, related ideas, inferences and interpretation, among the Comprehension Abilities Underachievers.

Correlations between scores of the complex comprehension abilities of central thought, simple details, related ideas, inferences and interpretation, as measured by the Van Wagenen Analytical Reading Scales among the Comprehension Abilities Underachievers, were positive in all cases but with varying

degrees of significance.

The relationship between the ability to derive central thought and the ability to draw inferences attained significance both among the underachievers in central thought and underachievers in inferences. The relationship between the ability to comprehend complex related ideas and the four remaining comprehension abilities reached a significant level among the underachievers in related ideas. And evidenced in all of the five sub-groups of comprehension abilities underachievers, was the significant degree of correlation between the ability to interpret and the four remaining comprehension abilities measured.

With the total group of silent comprehension abilities underachievers, all intercorrelations between the five comprehension abilities were significant, except that between the two abilities of related ideas and central thought, and between the abilities of related ideas and inferences.

Conclusions from Hypothesis VII

It can be concluded that the five comprehension abilities of central thought, simple details, related ideas, inferences and interpretation, as measured by the Van Wagenen Analytical Reading Scales among the Silent Comprehension Abilities Underachievers of this investigation, exhibited significant relationship.

It was noted that the interpretation ability showed from highly significant to significant relationship with all of the four remaining comprehension abilities, among the various sub-groups of Comprehension Abilities Underachievers. This indicates that the ability to interpret is likely a composite of the comprehension

skills measured, and it also suggests that a common factor, possibly a factor of reasoning, runs through these five comprehension abilities.

The five abilities assessed by the Van Wagenen test, in spite of the close relationship, are not identical abilities. This is evident in the varying patterns of interrelationships between each ability and the remaining four abilities.

HYPOTHESIS VIII

> There is no significant relationship between the underachieving reading ability and the reading aptitudes, among the Comprehension Abilities Underachievers.

Correlations between scores in the underachieving reading ability and scores in each of the reading aptitudes measured by the Monroe-Sherman Reading Aptitude Tests were all positive, with varying degrees of significance.

Scores in the comprehension ability of deriving central thought exhibited a significant level of correlation with scores in the visual aptitude test of letter memory among the central thought underachievers. Among the underachievers in simple details, underachievers in inferences, underachievers in interpretation, their respective underachieving reading ability all reached a significant degree of relationship with the same two aptitudes of visual form memory and auditory orientation-and-discrimination. The ability to comprehend related complex ideas attained a significant level of relationship with the visual aptitudes of letter memory and form memory, among the underachievers in related ideas.

With the total group of comprehension abilities underachievers, their comprehension abilities also reached a significant level of relationship with the visual and auditory aptitudes. And there was no significant relationship between these comprehension abilities and any of the two motor aptitudes except that between the ability to comprehend related ideas and the motor aptitude test of copying from text.

Conclusions from Hypothesis VIII

It can be concluded that the complex abilities of comprehending central thought, simple details, related ideas, inferences and interpretation, as measured by the Van Wagenen Analytical Reading Scales, showed a significant relationship with the visual and auditory aptitudes, as measured by the Monroe-Sherman Reading Aptitude Tests, among the Comprehension Abilities Underachievers of this study. But it cannot be concluded that the same comprehension abilities reached similarly significant level of relationship with the motor aptitudes, among the same underachievers.

It appears that the abilities to notice simple details, to draw inferences, to interpret the author's intent, are significant in their relationship with visual and auditory aptitudes to discriminate with accuracy. The ability to organize, to derive main ideas is significant in its relationship with the aptitude to remember the proper sequence of visual symbols. And the ability to comprehend complex, related ideas reaches significance in its relationship with visual memory. It appears that limitation in these aptitudes concurs with limitation in these comprehension processes.

HYPOTHESIS IX

> There is no significant relationship between the underachieving reading ability and achievement in English, social studies, science and mathematics, among the Comprehension Abilities Underachievers.

Correlations between the underachieving reading ability and achievement in English, social studies, science and mathematics, as measured by the Cooperative Achievement Tests among the Silent Comprehension Abilities Underachievers, were all positive, and with varying degrees of significance.

The ability to interpret the author's intent, among the underachievers in interpretation, reached a highly significant level of correlation with scores in all four subject areas measured. The ability to notice simple details, among the underachievers in simple details, also revealed significant correlations with the same achievement scores. Among the underachievers in central thought, the underachievers in related ideas, their respective underachieving ability attained a significant level of relationship with achievement in all of the curriculum areas measured except in mathematics. With the underachievers in inferences, the ability to draw inferences, to detect the relevant from the irrelevant, showed a significant relationship with achievement in three of the four curriculum areas measured, and nearly reached a significant level of relationship with the fourth, the achievement in social studies.

With the total group of comprehension abilities underachievers, the five complex comprehension abilities as measured exhibited a significant degree of correlation with scores in all four subject

areas with only one exception. The relationship between the ability to comprehend complex implied ideas and achievement in mathematics failed to reach a significant level.

Conclusions from Hypothesis IX

It can be concluded that the complex comprehension abilities, as measured by the Van Wagenen Analytical Reading Scales among the Comprehension Abilities Underachievers of the present study, showed a high degree of relationship with achievement in the curriculum areas as measured by the Cooperative Achievement Tests. It suggests that limitation in the complex comprehension abilities is concurrent with limitation in the academic subjects.

Caution is to be exercised in interpreting such highly significant relationships. The Van Wagenen test and the battery of Cooperative tests are both written tests of considerable length, and both standardized on a junior high school population. It is possible that such points of similarity and other factors connected with test construction may have heightened the degree of relationship.

MAJOR CONCLUSIONS OF THE STUDY

A comparison of the conclusions from the nine hypotheses yields the following:

1. The Interrelationship of Reading Abilities (Hypotheses I, IV and VII)

(a) There is evidence of close interrelationship between the reading abilities of the Silent Reading Underachievers, between the oral reading abilities of the Oral Reading Underachievers,

between the five complex comprehension abilities of the Comprehension Abilities Underachievers. It suggests that there is a general factor of reading ability and that reading underachievement is often not confined to one single area.

(b) A marked characteristic of this interrelationship is its inconsistency. The relationship between two reading abilities varies with the kind of reading ability and the type of reading underachievers. It appears that this has not been noted in previous research studies. The following observations substantiate this conclusion:

There is a significant and consistent relationship between silent reading vocabulary and silent reading speed measured by the Gates Reading Survey Tests among the Silent Reading Underachievers of this study. But the relationship between silent reading speed and silent reading comprehension, and the relationship between silent reading vocabulary and silent reading comprehension, measured by the same test, is less consistent among the same underachievers. Underachievers in silent reading comprehension tend to be limited in silent reading speed and vocabulary, while those limited in silent reading speed and silent reading vocabulary do not necessarily underachieve in silent reading comprehension.

The relationship between the oral reading abilities of speed, accuracy and comprehension as measured by the Neale

Analysis of Reading Ability among the Oral Reading Underachievers of the study is more consistent. Underachievers in one oral reading ability tend to be limited in the remaining abilities.

The relationship between the complex comprehension abilities as measured by the Van Wagenen Analytical Reading Scales among the Comprehension Abilities Underachievers of the study is in general significant and consistent, but with some exceptions. Underachievers in the ability to comprehend complex, implied ideas tend to be limited in the other comprehension abilities, including the ability to derive central thought and the ability to draw inferences. But underachievers in central thought and in inferences do not tend to underachieve in the ability to comprehend complex, implied ideas.

These patterns of relationships suggest that reading underachievement is often a complex and subtle problem.

2. The Relationship Between Visual and Auditory Memory Span and Reading Underachievement (Hypotheses II, V, VIII)

There is a closer relationship between reading underachievement and limitation in visual memory span than between reading underachievement and limitation in auditory memory span, as measured by the Monroe-Sherman Reading Aptitude Tests among the reading underachievers of this study. This conclusion is based on the following evidence:

There is a significant relationship between limited visual

memory for form and underachievement in silent reading speed, silent reading comprehension, oral reading accuracy, oral reading comprehension, in the ability to notice simple details, to draw inferences, and to interpret.

The limitation in visual letter memory shows a significant relationship with underachievement in silent reading vocabulary, silent reading comprehension, oral reading accuracy, oral reading comprehension, the ability to derive central thought, and the ability to comprehend complex related ideas.

The auditory aptitude for letter memory reaches a significant relationship with oral reading accuracy ability among the oral accuracy underachievers. But the same aptitude fails to reach a significant relationship with the underachieving reading ability among the rest of the reading underachievers investigated.

It therefore appears that visual memory span approaches a higher degree of relationship with reading underachievement than auditory memory span among the underachievers of this study. This agrees in a broad manner with Bradshaw's clinical study (1963), but differs from Stevenson's (1949) which was also a clinical study and reported limited auditory memory span among the experimental subjects. The present study differs from both investigations in that an attempt has been made to establish relationship between memory span and

specific reading underachievement, rather than between memory span and general reading retardation.

3. The Relationship Between Auditory Discrimination and Reading Underachievement (Hypotheses II, V, VIII)

There is a significant relationship between auditory discrimination as measured by the *Monroe-Sherman Reading Aptitude Tests* and certain reading abilities among the reading underachievers of the present study. But limitation in oral reading abilities does not appear to be concurrent with limitation in auditory discrimination. The following observations have been made:

There is significant relationship between limitation in this aptitude to discriminate auditorily and underachievement in silent reading speed, and the ability to notice simple details, to interpret the author's intent, and to draw inferences. But there is no significant relationship between this auditory aptitude and any of the oral reading abilities among the oral reading underachievers of the study. Very likely these particular underachievers fail to apply their auditory discrimination ability to their oral reading.

The present findings indicate that certain specific reading underachievement is related to limitation in auditory discrimination, though not all reading underachievement. It also indicates that there is a closer association between silent reading abilities and auditory aptitude than generally assumed.

4. The Relationship Between Visual-Muscular Coordination and Reading Underachievement (Hypotheses II, V, VIII)

There is evidence of significant relationship between reading underachievement and the type of visual-muscular coordination needed in a manual copying task. The following observations substantiate this conclusion:

In general the relationship between the two motor aptitudes as measured by the *Monroe-Sherman Reading Aptitude Tests* and reading abilities is slight among the underachievers of this study, but with a marked exception. There is significant relationship between the motor aptitude of copying-text and silent reading comprehension measured by the *Gates Reading Survey Tests* among the silent reading underachievers, and between the same motor aptitude and oral reading comprehension measured by the *Neale Analysis of Reading Ability* among the oral reading underachievers.

Investigations by Monroe (1932) and Bradshaw (1963) mentioned previously revealed that retarded readers tend to be poor in the kind of visual-muscular coordination needed for writing. However the measurement of reading used was a composite silent reading score in each case. In the present investigation, specific reading underachievement is studied, and limitation in the kind of visual-muscular coordination needed in copying from text manually has been found to be related, not to all types of reading underachievement, but to particular types of reading underachievement only, and not only related to

underachievement in silent reading comprehension, but also to underachievement in oral reading comprehension.

5. The Relationship Between Curriculum Achievement and Reading Abilities Among the Reading Underachievers (Hypotheses III, VI, IX)

(a) The relationship between reading underachievement and academic underachievement varies with the type of reading underachievers and the specific reading ability considered. This conclusion is based on the following evidence:

Silent reading speed ability, as measured by the Gates Reading Survey Tests among the silent speed underachievers of the study reaches a significant level of relationship with achievement in social studies. There is significant relationship between oral reading accuracy as measured by the Neale Analysis of Reading Ability and achievement in social studies, science and English, among the oral accuracy underachievers. The five complex comprehension abilities measured by the Van Wagenen Analytical Reading Scales show in general highly significant relationship with achievement in English, science and social studies, and with the exception of the comprehension abilities of deriving related ideas and central thought, to achievement in mathematics.

But underachievement in silent reading vocabulary and silent reading comprehension, as measured by the Gates test, and underachievement in oral reading comprehension, as measured by the Neale test, appear to have a low relationship with academic achievement as measured.

This varying degrees of relationship existing between the several aspects of reading and curriculum achievement was stressed by Bond(1938). The present study differs from hers in that not only various aspects of silent reading are considered, but also various aspects of oral reading and complex comprehension abilities are considered in relation to academic achievement. The pattern of relationships so revealed is extremely subtle.

(b) The Gates Reading Survey Tests do not appear to be as suitable as the Van Wagenen Analytical Reading Scales in measuring the reading abilities of junior high school students. This conclusion is based on the following observations:

In assessing the relationship between the reading abilities and academic achievement as measured, the greatest contrast is found between the Gates test scores and the Van Wagenen test scores, between the silent reading underachievers and the comprehension abilities underachievers. There appear to be two possible explanations. One is that the two groups of underachievers are distinct groups and the silent reading underachievers of the study are not limited in their achievement in academic subjects. A further investigation reveals that of the twenty-eight silent reading underachievers, twenty-six are also comprehension abilities underachievers. The first explanation therefore has to be discarded. The second explanation is that there may be a significant relationship between silent reading abilities and academic achievement, but that measures used to

evaluate the silent reading abilities of the silent reading underachievers are not sufficiently discriminating to detect the relationship. This second explanation, in view of the evidence, seems plausible.

It suggests therefore that this division of silent reading abilities into speed, vocabulary and comprehension as in the Gates Survey may not be subtle enough for the junior high school level. The more refined scales such as the Van Wagenen test which sub-divides the silent reading comprehension area into five abilities may be more satisfactory.

(c) Limitation in the complex comprehension abilities may be concurrent with limitation in the academic subjects measured:

The highly significant relationship found between the complex comprehension abilities as measured by the _Van Wagenen Analytical Reading Scales_, and academic achievement as measured by the _Cooperative Achievement Tests_, among the comprehension abilities underachievers of the study suggests that limitation in the complex comprehension abilities is concurrent with limitation in the academic subjects measured. But caution is to be exercised in interpreting these highly significant relationships. Factors other than the abilities measured might have been responsible for the high degree of relationship. This has been elaborated in connection with Hypothesis IX.

LIMITATIONS OF THIS STUDY

The conclusions of this study were governed by a number of limitations resulting from the research design, and choice of tests

used to carry out this investigation:

1. The findings cannot be generalized to all reading abilities, all reading aptitudes and all academic achievement, but only as those measured by the instruments chosen for this study.

2. The findings are to be interpreted in the context of the particular types of reading underachievement and types of reading underachievers investigated in the present study, and cannot be generalized to all reading underachievement and all reading underachievers.

3. The size of the population was limited to twenty-eight Silent Reading Underachievers, forty-three Oral Reading Underachievers and thirty-eight Comprehension Abilities Underachievers, and they were not mutually exclusive groups. It is possible that this selection might introduce some biases into the findings. However efforts were made to minimize biases in the investigation by considering only the underachieving reading ability in each group in relation to other factors.

4. During the course of the investigation, it was found that among the Oral Reading Underachievers, only four underachieved in oral reading speed. This imposed some limitation.

5. The study was confined to an investigation of reading underachievers in a junior high school. Achievers were not included. A study of the reading achievers in the interrelationship of reading abilities, their performance in reading aptitude tests and academic achievement, might have provided useful comparisons.

6. Intelligence test scores were used to assist the selection of reading underachievers, but the factor of intelligence was not separated out for specific study. No attempt has been made to study the relative relationship of level of intelligence to reading underachievement. The reading underachievers were not studied in terms of students who were bright but underachieving, and students who were below average in intelligence and underachieving.

7. The statistical method adopted for the investigation was simple intercorrelation, as the purpose of the investigation was to study the correlates of reading underachievement. As a result of the choice of statistical method, no cause and effect relationship could be determined by statistical evidence. Also as this was a study of a selected group at one end of a continuum, this selection would possibly introduce biases in the correlation found between two variables, resulting in a depressed effect in the coefficients.

Conclusions drawn from this study must be considered in the light of the above limitations.

IMPLICATIONS OF THIS STUDY

Implications for Teaching

1. Reading Underachievement is often not confined to one single area, and often it is a complex and subtle phenomenon. A program of remediation for reading underachievers often has to be comprehensive as well as specific.

2. An analysis of the significant but not necessarily consistent interrelationships between the reading abilities of the reading underachievers has led to the following implications for the classroom:

(a) A limitation in reading vocabulary does not necessarily impede the process of comprehension entirely. It seems that students limited in reading vocabulary can learn and should be taught besides vocabulary skills other methods of attack, such as reading by context, to aid their comprehension.

(b) It appears that oral reading inaccuracy, in terms of faulty word recognition, impedes both oral reading speed and oral reading comprehension. The importance of this reading skill should be emphasized in oral reading instructions, and not only at the elementary but also at the later levels.

(c) Of the various comprehension abilities, the ability to interpret appears to be a composite of the other comprehension abilities such as the abilities to derive the main thought, to notice simple details, to comprehend implied ideas and to draw inferences. It seems important that students at the junior high school level ultimately acquire this ability to interpret, through first gaining proficiency in the less complex comprehension abilities mentioned.

3. It has been found that a consistent pattern of relationship exists between various reading abilities and reading aptitudes. Reading underachievement tends to be related to poor visual memory, poor auditory memory and visual-muscular coordination, and to a

lesser extent, poor auditory discrimination. This significant relationship between reading abilities and aptitudes should be taken into account and perhaps training in these aptitudes should accompany teaching of reading skills, especially in the early years of school.

4. With the oral accuracy underachievers of this study, their ability to read with quick, careful word recognition in an oral reading situation, appears to have a low relationship with their ability to discriminate auditorily. It indicates that some students with good auditory discrimination ability fail to apply it to their oral reading. Systematic instruction in its application may prove to be effective.

5. A highly significant relationship has been found between academic achievement in English, science, social studies, mathematics and the various complex comprehension abilities of comprehending central thought, noticing simple details, drawing inferences, comprehending related ideas and making interpretations. Caution is advised in assessing such highly significant relationships, but nevertheless the possible significance of complex comprehension skills in academic achievement should not be completely ignored in the classroom.

Implications for Testing

The choice of instruments for testing is to be made with caution. The Gates Reading Survey Tests, so commonly used in our junior high schools, according to evidence of this study does not appear to be sufficiently discriminating in assessing the reading

abilities of students at this level. The more refined scales such as the Van Wagenen Analytical Reading Scales which sub-divides the silent reading comprehension area into five abilities seem to be more suitable.

Implications for Research on Reading Underachievment

1. There is evidence of close interrelationship between the reading abilities and this appears to indicate that there is a general factor of reading ability. But a marked characteristic of this interrelationship is its inconsistency. The relationship between two reading abilities has been found to vary with the kind of reading ability and the type of reading underachievers. This characteristic of inconsistency, not noted in previous studies, should be further investigated, on a scale larger than the present study.

2. A significant relationship between reading abilities and visual memory span has been found among the reading underachievers. This agrees with previous research findings. On the other hand a generally low relationship between auditory memory span and reading abilities among the same underachievers has been revealed. This disagrees with some, though not all, of existing research findings. The difference may be due to the fact that the present study investigates the relationship between memory span and specific reading underachievement, whereas previous studies investigated the relationship between memory span and general reading underachievement. Suggestion is made that the relationship between memory span and

composite reading underachievement as well as between memory span and specific reading underachievement be both studied and the findings be compared.

3. It has been found that certain specific reading underachievement but not all types of reading underachievement is related to limitation in auditory discrimination. Present findings also suggest that there is a closer association between silent reading abilities and auditory discriminatory aptitude than generally assumed. Further investigation is recommended.

4. Previous research findings on the relationship between visual-muscular coordination and reading underachievement remain inconclusive. The present investigation shows that limitation in the kind of fine visual-muscular coordination needed in copying from text manually is related not only to underachievement in silent reading comprehension, but also to underachievement in oral reading comprehension. This may be due to a factor of personal temperament and further study is recommended.

5. It is suggested that periodic testing of visual memory, auditory memory, auditory orientation-and-discrimination, visual-muscular coordination be administered to school children, so as to provide experimental evidence whether these aptitudes can be improved by training, or if growth in these areas is entirely dependent on maturation.

6. Highly significant relationship has been found between the complex comprehension abilities as measured by the Van Wagenen Analytical Reading Scales, and academic achievement as measured by

the Cooperative Achievement Tests, among those limited in complex comprehension skills. It suggests that limitation in the complex comprehension abilities is concurrent with limitation in the academic subjects, but caution is to be exercised in interpreting such high degree of relationship as they might be a function of the tests used. It is recommended that other instruments be used, and the two sets of findings be compared.

7. Recommendation is made that achievement in each subject area be represented not only by a full score, but broken down into sub-areas such as informational background, application of skills, knowledge of terms and concepts, and be correlated with reading abilities. In this way a clearer idea of the relationship between reading and academic achievement may be ascertained.

8. The concept of reading underachievement perhaps should be revised. Reading underachievement has hitherto been generally regarded as a general condition. Previous studies investigating reading underachievement and its correlates often used an average reading score or a single reading index, and often on silent reading rather than on oral reading. This study has attempted to study specific reading underachievement and its correlates. The findings have indicated that this establishes a much more definitive pattern of relationships.

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APPENDICES

OTIS SELF-ADMINISTERING TESTS OF MENTAL ABILITY

By Arthur S. Otis, Ph.D.

Formerly Development Specialist with Advisory Board, General Staff, United States War Department

INTERMEDIATE EXAMINATION: FORM A

For Grades 4–9

20 Score............

Read this page. Do what it tells you to do.

Do not open this paper, or turn it over, until you are told to do so. Fill these blanks, giving your name, age, birthday, etc. Write plainly.

Name.. Age last birthday......years
First name, initial, and last name

Birthday.............................Teacher..................Date.................19....
Month Day

Grade..................School.....................City.................................

This is a test to see how well you can think. It contains questions of different kinds. Here is a sample question already answered correctly. Notice how the question is answered:

Sample: Which one of the five words below tells what an apple is?
1 flower, 2 tree, 3 vegetable, 4 fruit, 5 animal.......................(4)

The right answer, of course, is "fruit"; so the word "fruit" is underlined. And the word "fruit" is No. 4; so a figure 4 is placed in the parentheses at the end of the dotted line. This is the way you are to answer the questions.

Try this sample question yourself. Do not write the answer; just draw a line under it and then put its number in the parentheses:

Sample: Which one of the five things below is round?
1 a book, 2 a brick, 3 a ball, 4 a house, 5 a box.....................( )

The answer, of course, is "a ball"; so you should have drawn a line under the words "a ball" and put a figure 3 in the parentheses. Try this one:

Sample: A foot is to a man and a paw is to a cat the same as a hoof is to a — what?
1 dog, 2 horse, 3 shoe, 4 blacksmith, 5 saddle........................( )

The answer, of course, is "horse"; so you should have drawn a line under the word "horse" and put a figure 2 in the parentheses. Try this one:

Sample: At four cents each, how many cents will 6 pencils cost?........................( )

The answer, of course, is 24, and there is nothing to underline; so just put the 24 in the parentheses.

If the answer to any question is a number or a letter, put the number or letter in the parentheses without underlining anything. Make all letters like printed capitals.

The test contains 75 questions. You are not expected to be able to answer all of them, but do the best you can. You will be allowed half an hour after the examiner tells you to begin. Try to get as many right as possible. Be careful not to go so fast that you make mistakes. Do not spend too much time on any one question. No questions about the test will be answered by the examiner after the test begins. Lay your pencil down.

Do not turn this page until you are told to begin.

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EXAMINATION BEGINS HERE.

1. Which one of the five things below does not belong with the others? (Do not write on these dotted lines.)
   1 potato, 2 turnip, 3 carrot, 4 stone, 5 onion .... ( )
2. Which one of the five words below tells best what a saw is?
   1 something, 2 tool, 3 furniture, 4 wood, 5 machine .... ( )
3. Which one of the five words below means the opposite of west?
   1 north, 2 south, 3 east, 4 equator, 5 sunset .... ( )
4. A hat is to a head and a glove is to a hand the same as a shoe is to what?
   1 leather, 2 a foot, 3 a shoestring, 4 walk, 5 a toe .... ( )
5. A child who knows he is guilty of doing wrong should feel (?)
   1 bad, 2 sick, 3 better, 4 afraid, 5 ashamed .... ( )
6. Which one of the five things below is the smallest?
   1 twig, 2 limb, 3 bud, 4 tree, 5 branch .... ( )
7. Which one of the five things below is most like these three: cup, plate, saucer?
   1 fork, 2 table, 3 eat, 4 bowl, 5 spoon .... ( )
8. Which of the five words below means the opposite of strong?
   1 man, 2 weak, 3 small, 4 short, 5 thin .... ( )
9. A finger is to a hand the same as a toe is to what?
   1 foot, 2 toenail, 3 heel, 4 shoe, 5 knee .... ( )
10. Which word means the opposite of sorrow?
    1 sickness, 2 health, 3 good, 4 joy, 5 pride .... ( )
11. Which one of the ten numbers below is the smallest? (Tell by letter.)
    A 6084, B 5160, C 4342, D 6521, E 9703, F 4296, G 7475, H 2657, J 8839, K 3918 ( )
12. Which word means the opposite of pretty?
    1 good, 2 ugly, 3 bad, 4 crooked, 5 nice .... ( )
13. Do what this mixed-up sentence tells you to do.
    number Write the the in 5 parentheses .... ( )
14. If we believe some one has committed a crime, but we are not sure, we have a (?)
    1 fear, 2 suspicion, 3 wonder, 4 confidence, 5 doubtful .... ( )
15. A book is to an author as a statue is to (?)
    1 sculptor, 2 marble, 3 model, 4 magazine, 5 man .... ( )
16. Which is the most important reason that words in the dictionary are arranged alphabetically?
    1 That is the easiest way to arrange them. 2 It puts the shortest words first. 3 It enables us to find any word quickly. 4 It is merely a custom. 5 It makes the printing easier .. ( )
17. Which one of the five things below is most like these three: plum, apricot, apple?
    1 tree, 2 seed, 3 peach, 4 juice, 5 ripe .... ( )
18. At 4 cents each, how many pencils can be bought for 36 cents? .... ( )
19. If a person walking in a quiet place suddenly hears a loud sound, he is likely to be (?)
    1 stopped, 2 struck, 3 startled, 4 made deaf, 5 angered .... ( )
20. A boy is to a man as a (?) is to a sheep.
    1 wool, 2 lamb, 3 goat, 4 shepherd, 5 dog .... ( )
21. One number is wrong in the following series. What should that number be? (Just write the correct number in the parentheses.)
    1 6 2 6 3 6 4 6 5 6 7 6 .... ( )
22. Which of the five things below is most like these three: horse, pigeon, cricket?
    1 stall, 2 saddle, 3 eat, 4 goat, 5 chirp .... ( )
23. If the words below were rearranged to make a good sentence, with what letter would the last word of the sentence begin? (Make the letter like a printed capital.)
    nuts from squirrels trees the gather .... ( )
24. A man who betrays his country is called a (?)
    1 thief, 2 traitor, 3 enemy, 4 coward, 5 slacker .... ( )
25. Food is to the body as (?) is to an engine.
    1 wheels, 2 fuel, 3 smoke, 4 motion, 5 fire .... ( )
26. Which tells best just what a pitcher is?
    1 a vessel from which to pour liquid, 2 something to hold milk, 3 It has a handle, 4 It goes on the table, 5 It is easily broken .... ( )

Do not stop. Go on with the next page.

27. If George is older than Frank, and Frank is older than James, then George is (?) James.
1 older than, 2 younger than, 3 just as old as, 4 (cannot say which)................ ( )

28. Count each 7 below that has a 5 next after it. Tell how many 7's you count.
7 5 3 0 9 7 3 7 8 5 7 4 2 1 7 5 7 3 2 4 7 0 9 3 7 5 5 7 2 3 5 7 7 5 4 7........ ( )

29. If the words below were rearranged to make a good sentence, with what letter would the last word of the sentence begin? (Make the letter like a printed capital.)
leather shoes usually made are of.. ( )

30. An electric light is to a candle as a motorcycle is to (?)
1 bicycle, 2 automobile, 3 wheels, 4 speed, 5 police.............................. ( )

31. Which one of the words below would come first in the dictionary?
1 march, 2 ocean, 3 horse, 4 paint, 5 elbow, 6 night, 7 flown..................... ( )

32. The daughter of my mother's brother is my (?)
1 sister, 2 niece, 3 cousin, 4 aunt, 5 granddaughter.............................. ( )

33. One number is wrong in the following series. What should that number be?
3 4 5 4 3 4 5 4 3 5.................................... ( )

34. Which of the five things below is most like these three: boat, horse, train?
1 sail, 2 row, 3 motorcycle, 4 move, 5 track.................................. ( )

35. If Paul is taller than Herbert and Paul is shorter than Robert, then Robert is (?) Herbert.
1 taller than, 2 shorter than, 3 just as tall as, 4 (cannot say which)................ ( )

36. What is the most important reason that we use clocks?
1 to wake us up in the morning, 2 to regulate our daily lives, 3 to help us catch trains, 4 so that children will get to school on time, 5 They are ornamental.................. ( )

37. A coin made by an individual and meant to look like one made by the government is called(?)
1 duplicate, 2 counterfeit, 3 imitation, 4 forgery, 5 libel........................ ( )

38. A wire is to electricity as (?) is to gas.
1 a flame, 2 a spark, 3 hot, 4 a pipe, 5 a stove................................. ( )

39. If the following words were arranged in order, with what letter would the middle word begin?
Yard Inch Mile Foot Rod.. ( )

40. One number is wrong in the following series. What should that number be?
5 10 15 20 25 29 35 40 45 50.......................... ( )

41. Which word means the opposite of truth?
1 cheat, 2 rob, 3 liar, 4 ignorance, 5 falsehood................................. ( )

42. Order is to confusion as (?) is to war.
1 guns, 2 peace, 3 powder, 4 thunder, 5 army................................... ( )

43. In a foreign language, good food = Bano Naab
good water = Heto Naab
The word that means *good* begins with what letter?.................................... ( )

44. The feeling of a man for his children is usually (?)
1 affection, 2 contempt, 3 joy, 4 pity, 5 reverence.............................. ( )

45. Which of the five things below is most like these three: stocking, flag, sail?
1 shoe, 2 ship, 3 staff, 4 towel, 5 wash... ( )

46. A book is to information as (?) is to money.
1 paper, 2 dollars, 3 bank, 4 work, 5 gold....................................... ( )

47. If Harry is taller than William, and William is just as tall as Charles, then Charles is (?) Harry.
1 taller than, 2 shorter than, 3 just as tall as, 4 (cannot say which)................ ( )

48. If the following words were arranged in order, with what letter would the middle word begin?
Six Ten Two Eight Four.. ( )

49. If the words below were rearranged to make a good sentence, with what letter would the third word of the sentence begin? (Make the letter like a printed capital.)
men high the a wall built stone.. ( )

50. If the suffering of another makes us suffer also, we feel (?)
1 worse, 2 harmony, 3 sympathy, 4 love, 5 repelled................................ ( )

51. In a foreign language, grass = Moki
green grass = Moki Laap
The word that means *green* begins with what letter?.................................... ( )

Do not stop. Go on with the next page.

52. If a man has walked west from his home 9 blocks and then walked east 4 blocks, how many blocks is he from his home?.. (   )

53. A pitcher is to milk as (?) is to flowers.
1 stem, 2 leaves, 3 water, 4 vase, 5 roots.. (   )

54. Do what this mixed-up sentence tells you to do.
sum three Write two the four and of.. (   )

55. There is a saying, "Don't count your chickens before they are hatched." This means (?)
1 Don't hurry. 2 Don't be too sure of the future. 3 Haste makes waste. 4 Don't gamble.. (   )

56. Which statement tells best just what a fork is?
1 a thing to carry food to the mouth, 2 It goes with a knife, 3 an instrument with prongs at the end, 4 It goes on the table, 5 It is made of silver.. (   )

57. Wood is to a table as (?) is to a knife.
1 cutting, 2 chair, 3 fork, 4 steel, 5 handle.. (   )

58. Do what this mixed-up sentence tells you to do.
sentence the letter Write last this in.. (   )

59. Which one of the words below would come last in the dictionary?
1 alike, 2 admit, 3 amount, 4 across, 5 after, 6 amuse, 7 adult, 8 affect (   )

60. There is a saying, "He that scatters thorns, let him go barefoot." This means (?)
1 Let him who causes others discomforts bear them himself also. 2 Going barefoot toughens the feet. 3 People should pick up what they scatter. 4 Don't scatter things around.. (   )

61. If the following words were arranged in order, with what letter would the middle word begin?
Plaster Frame Wallpaper Lath Foundation.. (   )

62. In a foreign language,
many boys = Boka Hepo
many girls = Marti Hepo
many boys and girls = Boka Ello Marti Hepo
The word that means *and* begins with what letter?.. (   )

63. A statement which expresses just the opposite of that which another statement expresses is said to be a (?)
1 lie, 2 contradiction, 3 falsehood, 4 correction, 5 explanation.. (   )

64. There is a saying, "Don't look a gift horse in the mouth." This means (?)
1 It is not safe to look into the mouth of a horse. 2 Although you question the value of a gift, accept it graciously. 3 Don't accept a horse as a gift. 4 You cannot judge the age of a gift horse by his teeth.. (   )

65. Which one of the words below would come last in the dictionary?
1 hedge, 2 glory, 3 label, 4 green, 5 linen, 6 knife, 7 honor.. (   )

66. Which statement tells best just what a watch is?
1 It ticks, 2 something to tell time, 3 a small, round object with a chain, 4 a vest-pocket-sized time-keeping instrument, 5 something with a face and hands.. (   )

67. Ice is to water as water is to what?
1 land, 2 steam, 3 cold, 4 river, 5 thirst.. (   )

68. Which statement tells best just what a window is?
1 something to see through, 2 a glass door, 3 a frame with a glass in it, 4 a glass opening in the wall of a house, 5 a piece of glass surrounded by wood.. (   )

69. Which of the five words below is most like these three: large, red, good?
1 heavy, 2 size, 3 color, 4 apple, 5 very.. (   )

70. Write the letter that follows the letter that comes next after M in the alphabet.. (   )

71. One number is wrong in the following series. What should that number be?
1 2 4 8 16 24 64.. (   )

72. An uncle is to an aunt as a son is to a (?)
1 brother, 2 daughter, 3 sister, 4 father, 5 girl.. (   )

73. If I have a large box with 3 small boxes in it and 4 very small boxes in each of the small boxes, how many boxes are there in all?.. (   )

74. One number is wrong in the following series. What should that number be?
1 2 4 5 7 8 10 11 12 14.. (   )

75. There is a saying, "Don't ride a free horse to death." This means (?)
1 Don't be cruel. 2 Don't abuse a privilege. 3 Don't accept gifts. 4 Don't be reckless. (   )

If you finish before the time is up, go back and make sure that every answer is right.

Junior High Level • GRADES 7-8-9 • 1957 S-Form

California Short-Form Test of Mental Maturity

Devised by

ELIZABETH T. SULLIVAN, WILLIS W. CLARK, AND ERNEST W. TIEGS

J H

S-57

ISTRUCTIONS TO EXAMINEES:

This is a test of mental maturity. In taking it you will show how well you understand relationships and what you do when you face new problems. No one is expected to do the whole test correctly, but you should answer as many items as you can. Work as fast as you can without making mistakes.

O NOT WRITE OR MARK ON THIS TEST BOOKLET UNLESS TOLD TO DO SO BY THE EXAMINER.

5th Printing

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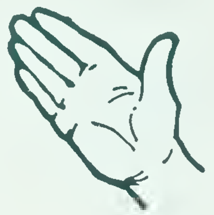
DIRECTIONS: Mark as you are told the letter, R, for each picture that shows a righ mark the letter, L, for each picture that shows a left.

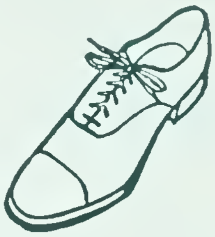
Samples A and B

A



R L

B



R L

Correct Test Booklet Marks

A

[✓ R] L

B

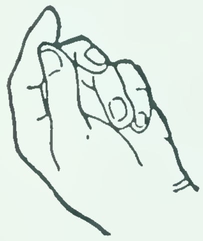
R [✓ L]

Correct Answer Sheet M

	R	L
A	▌	⁞
B	⁞	▌

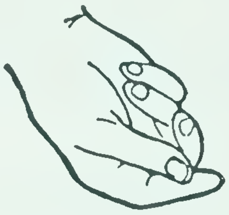
TEST 1

1



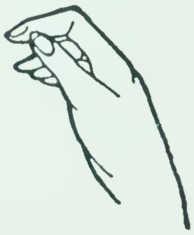
R L

2



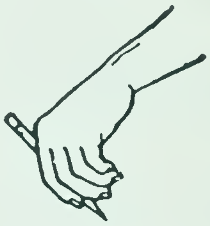
R L

3

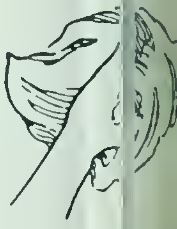


R L

4

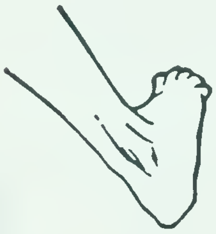


R L



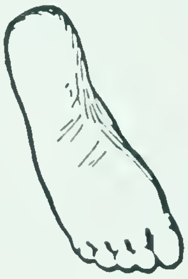
R

6



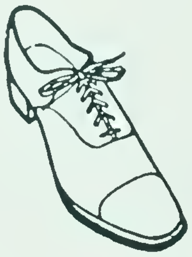
R L

7



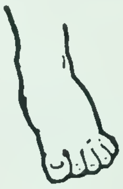
R L

8



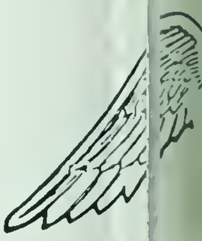
R L

9



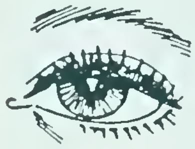
R L

1



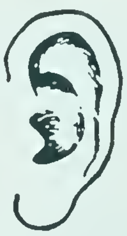
R

11



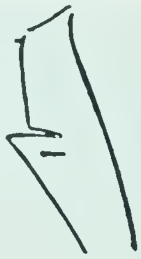
R L

12



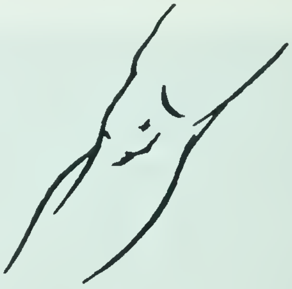
R L

13



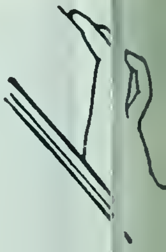
R L

14



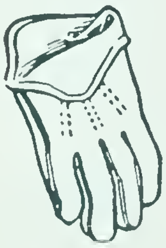
R L

1



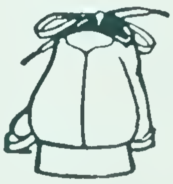
R

16



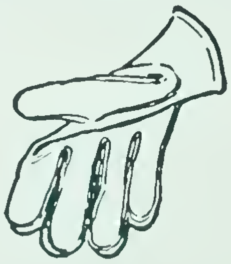
R L

17



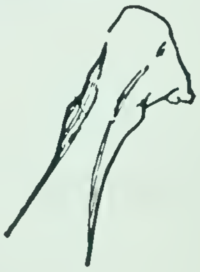
R L

18



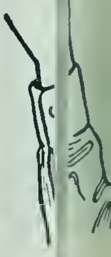
R L

19



R L

2



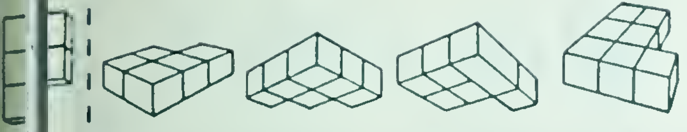
R

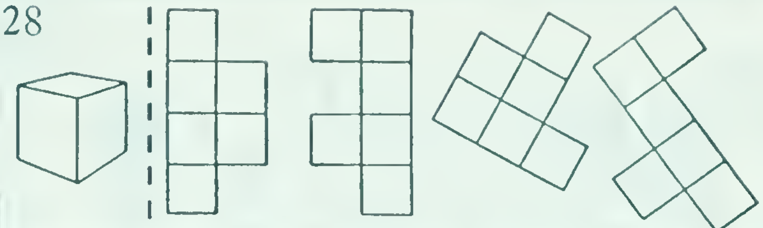
STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 1 Score (number right) ....

IRECTIONS: In each row find the drawing that is a different view of the first drawing. Mark its number as you are told.

TEST 2


1 2 3 4 ____C

28

1 2 3 4 ____28

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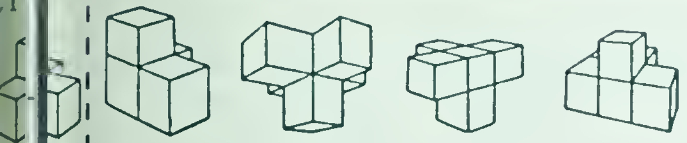
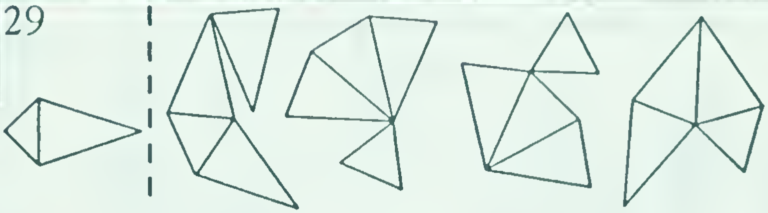

1 2 3 4 ____21

29

1 2 3 4 ____29

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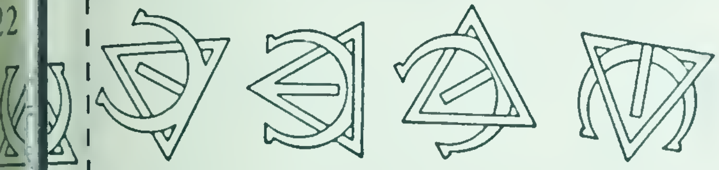
1 2 3 4 ____22

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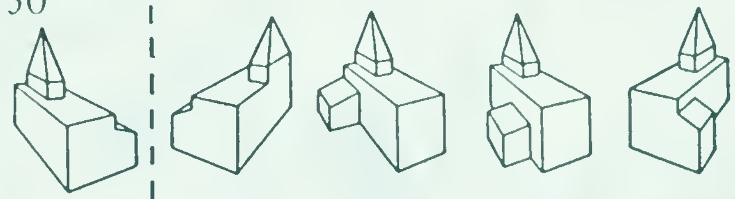
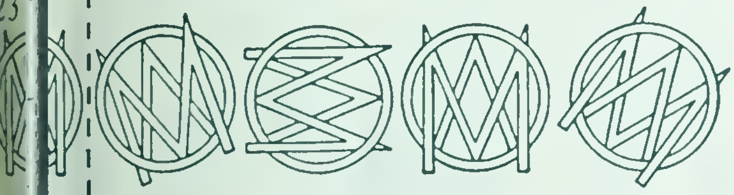
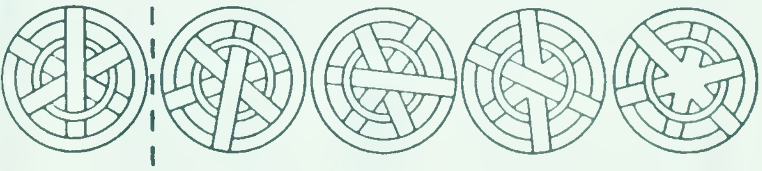
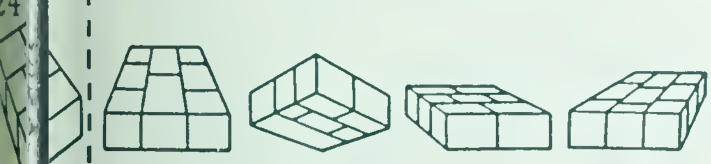
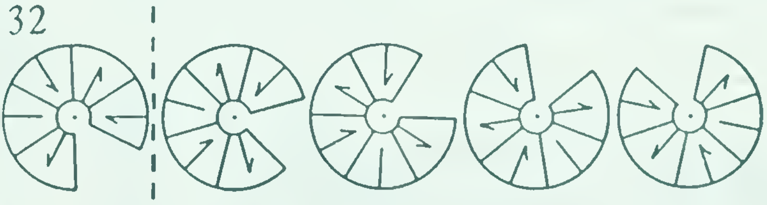
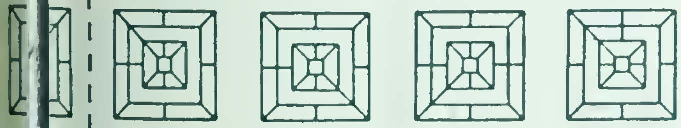

1 2 3 4 ____30

23

1 2 3 4 ____23

31

1 2 3 4 ____31

24

1 2 3 4 ____24

32

1 2 3 4 ____32

25

1 2 3 4 ____25

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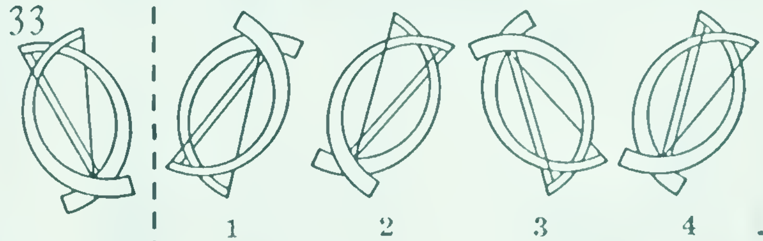
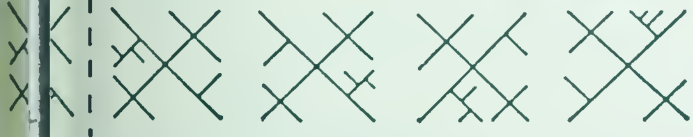

1 2 3 4 ____33

26

1 2 3 4 ____26

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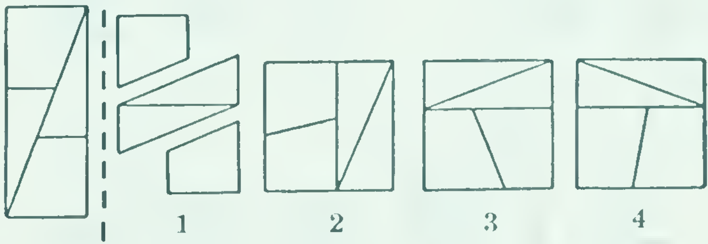
1 2 3 4 ____34

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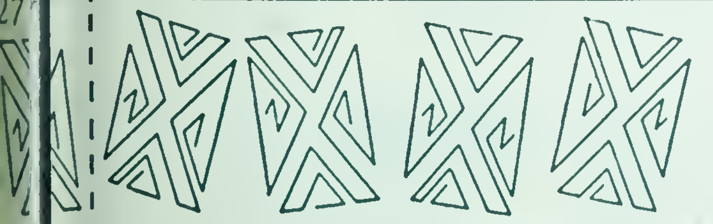
1 2 3 4 ____27

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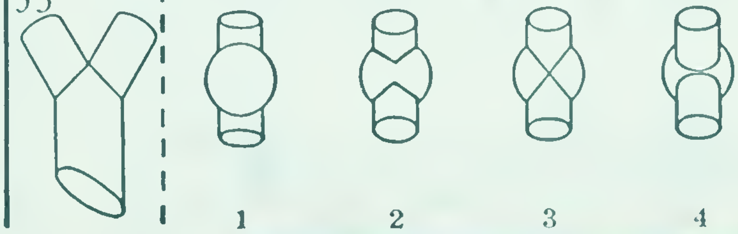

1 2 3 4 ____35

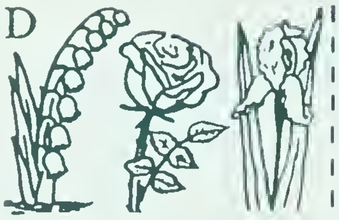
STOP NOW WAIT FOR FURTHER INSTRUCTIONS

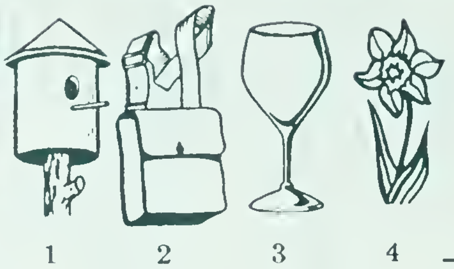
Test 2 Score
(number right).................................

DIRECTIONS: The first three pictures in each row are alike in some way. Decide they are alike, and then find the one picture among the four to the ri of the dotted line that is most like them and mark its number.

TEST 3

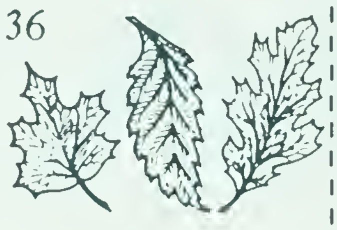
D

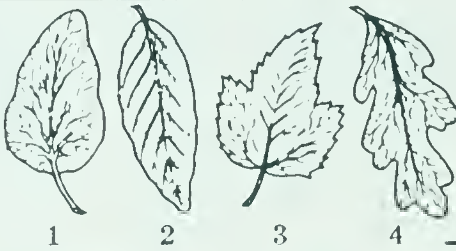




____D

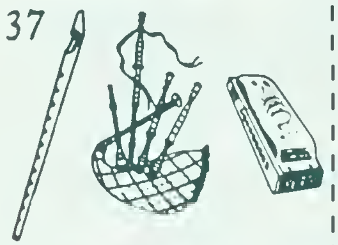
36

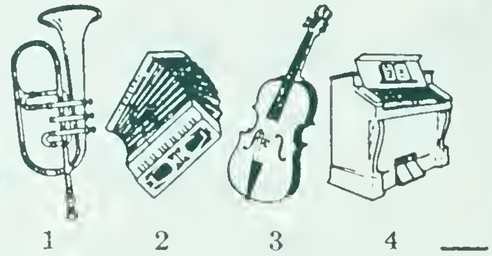




____36

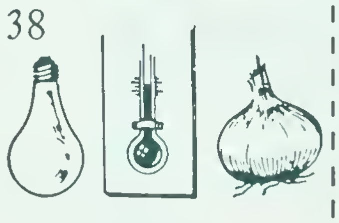
37

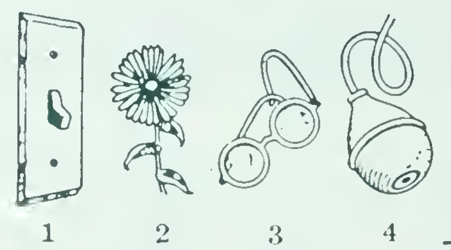




____37

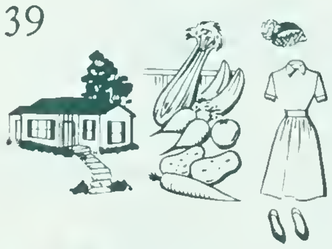
38

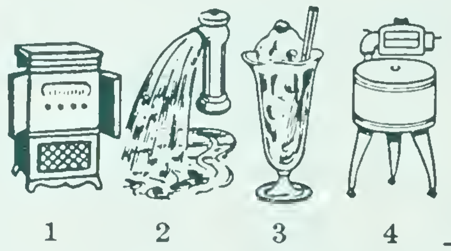




____38

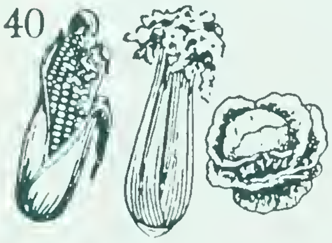
39

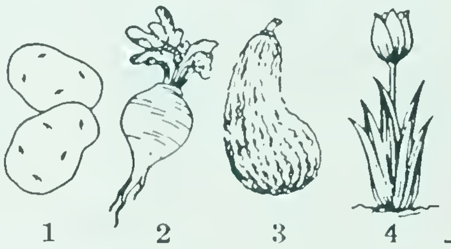




____39

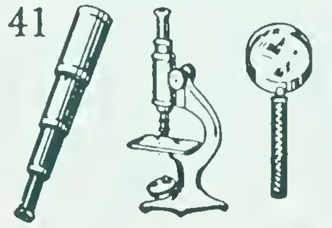
40

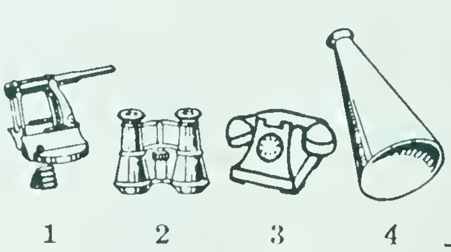




____40

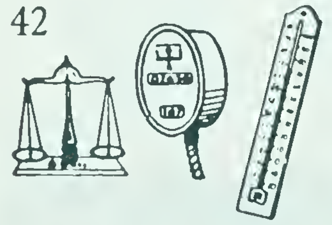
41

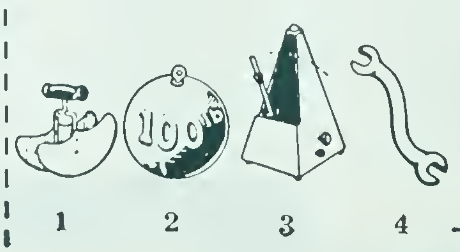




____41

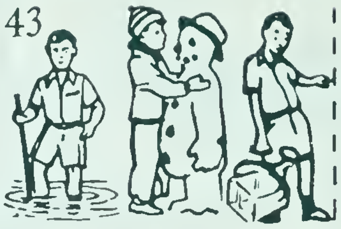
42

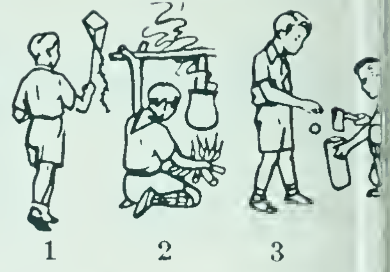




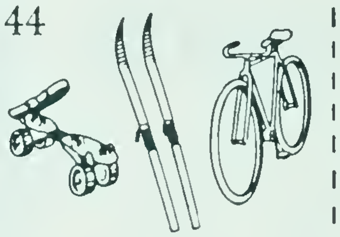
____42

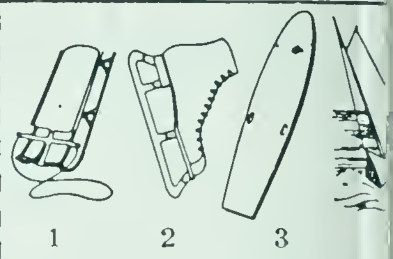
43



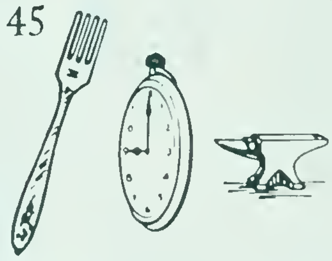


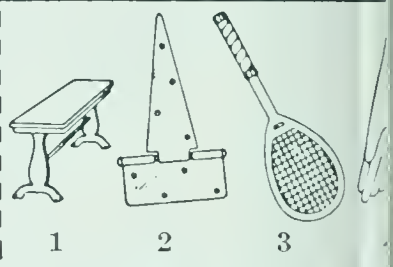
44



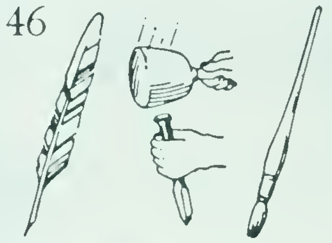


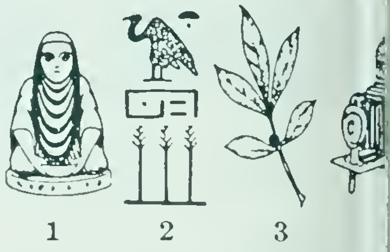
45



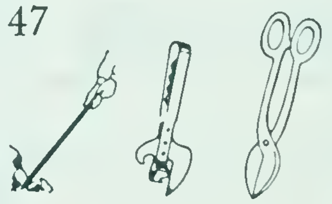


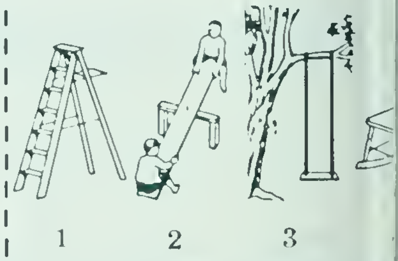
46





47





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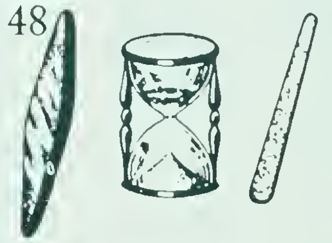
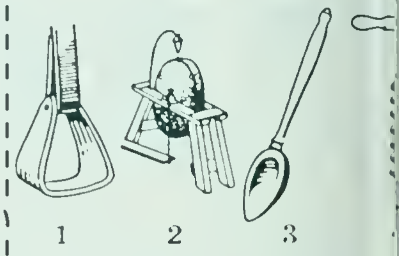
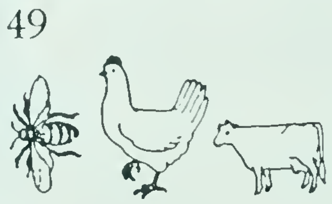
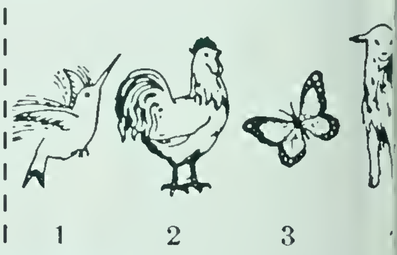


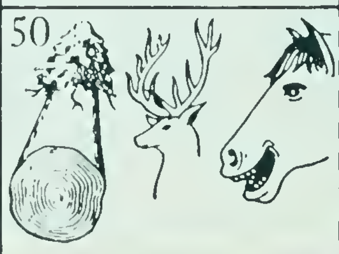


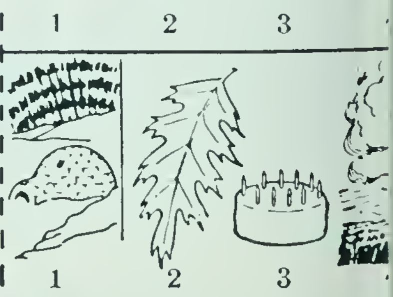
49





50





STOP

Test 3 Score
(number right).........

IRECTIONS: Read each group of statements below and the conclusions which follow. Then mark as you are told the number of each answer you have decided is correct.

TEST 4

All four-footed creatures are nimals.

All horses are four-footed.

Therefore

Creatures other than horses can walk

All horses can walk

All horses are animals ——E

Mr. X is an aviator.

Mr. X is scoutmaster for his ome town.

Therefore

Aviators make good scoutmasters

One aviator is a scoutmaster

Scoutmasters make good aviators ——51

Three boys are on a mountain rail.

Dick is farther up the trail than Dan.

Frank is farther up than Dick.

Which boy is in the middle osition on the trail?

Dick

Dan

Frank ——52

No human beings are exempt rom accidents.

Automobile drivers are human eings.

Therefore

No human being is dependable

No automobile drivers are exempt from accidents

Few human beings make safe automobile drivers ——53

54. If he remains with his friend he will suffer loss, and if he leaves his friend he will suffer loss.

But, he must remain with his friend or leave him.

Therefore

1 He should remain with his friend

2 It takes courage to leave a friend

3 He will suffer loss ——54

55. All squares have four equal sides.

This figure does not have four equal sides.

Therefore

1 It is a circle

2 It is not a square

3 It is either a triangle or a rectangle ——55

56. He is either foreign-born or a native.

But, he is not foreign-born.

Therefore

1 He is a voter

2 He is a native

3 He is a soldier ——56

57. Pine Street is parallel to River Drive.

River Drive is parallel to Cypress Street.

Therefore

1 Pine Street is east of River Drive

2 Cypress Street crosses Pine Street

3 Pine Street is parallel to Cypress Street ——57

GO RIGHT ON TO THE NEXT PAGE

TEST 4 (Continued)

58. Either your sister is more intelligent than you, or as intelligent, or less intelligent.

But, your sister is not more intelligent, nor is she less intelligent.

Therefore

¹ **Your sister is less intelligent than you**
² **Your sister is as intelligent as you**
³ **Your sister is more intelligent than you** ______58

59. Jim has a better batting average than Ed.

Ed has a better batting average than Bill.

Who has the best batting average?

¹ **Jim**
² **Bill**
³ **Ed** ______59

60. A weighs less than B.

B weighs less than C.

Therefore

¹ **B weighs more than C**
² **A's weight equals B's and C's**
³ **A weighs less than C** ______60

61. The box contains either gold or silver or crystal.

It does not contain silver.

Therefore

¹ **It contains crystal**
² **It contains either gold or crystal**
³ **The conclusion is uncertain** ______61

62. If he is to keep his place on the team he must avoid disputes with the captain and the coach.

But, he will neither avoid disputes with the captain, nor will he avoid disputes with the coach.

Therefore

¹ **He will not remain on the team**
² **He will lose in popularity with the school**
³ **He may have a reasonable complaint** _6

63. If the claim is unjust, refusal to permit its discussion before the Student Council is unwise.

If the claim is just, refusal is inexcusable.

But, the claim is either unjust or it is just.

Therefore

¹ **The refusal is justified**
² **The refusal is being discussed freely**
³ **The refusal is either unwise or inexcusable** _6

64. A's house is situated northeast of B's.

B's house is situated northeast of C's.

Therefore

¹ **A's house is situated nearest to C's**
² **C's house is nearer to A's house than to B's**
³ **A's house is situated to the northeast of C's** _6

65. W is between X and Y.

X is between Y and Z.

Therefore

¹ **W is not between Y and Z**
² **W is between X and Z**
³ **W is nearer to X than to Z** _6

STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 4 Score
(number right)..........................

DIRECTIONS: In each row of numbers below, there is one that does not belong. Find the number that should be omitted from each row among the answer numbers on the right, and mark its letter as you are told. When you have finished as many as you can from 66 to 75, read the Directions in the middle of the page and proceed with rows 76 to 80.

TEST 5.

. 2 4 6 8 9 10 12 14	a 6 b 9 c 10 d 12 e 14	——F
. 14 12 10 8 7 6 4	a 14 b 12 c 10 d 8 e 7	——66
. 19 16 13 11 10 7 4	a 13 b 11 c 10 d 7 e 4	——67
. 1 5 9 13 15 17	a 15 b 13 c 9 d 5 e 1	——68
. 4 5 7 8 10 11 12 13	a 7 b 8 c 11 d 12 e 13	——69
. 2 4 5 7 8 9 10 11 13 14	a 2 b 4 c 9 d 10 e 13	——70
0 7 14 19 24 27 29 30 31	a 29 b 27 c 24 d 14 e 0	——71
20 17 15 14 11 9 8 7 5 3 2	a 17 b 14 c 9 d 7 e 5	——72
21 20 18 15 14 12 10 9 8 6 3	a 21 b 10 c 9 d 8 e 6	——73
. 2 3 5 8 12 17 22 23 30	a 3 b 8 c 12 d 17 e 22	——74
. 20 18 19 17 18 16 17 14 15 16	a 20 b 19 c 17 d 14 e 16	——75

DIRECTIONS: Go right on with the following until told to stop. In each row of numbers below, the numbers grow larger or smaller in a regular series of whole numbers. Decide what numbers are missing, find them among the answers on the right, and mark the letter of your choice for the correct answer.

. 12 ...... 14 15 .... 18 (In Sample X the correct answer is C, meaning 13, 16, 17.)	a 13, 15, 16 b 13, 15, 17 c 13, 16, 17 d 14, 16, 17 e 15, 16, 18	C X
1 4 ...... 10 19	a 5, 11, 18 b 7, 13, 16 c 5, 13, 16 d 7, 11, 18 e 5, 16, 18	——76
2 ...... 8 ...... 32	a 7, 13, 33 b 4, 16, 37 c 3, 15, 48 d 4, 16, 64 e 6, 24, 64	——77
44 37 .... 16 2	a 30, 22, 8 b 31, 22, 9 c 30, 23, 9 d 30, 21, 9 e 31, 23, 8	——78
6 ...... 28 ...... 50 72	a 16, 38, 60 b 16, 39, 61 c 17, 38, 60 d 11, 39, 61 e 17, 39, 61	——79
83 70 ...... 44 5	a 57, 31, 18 b 53, 33, 23 c 57, 33, 19 d 53, 31, 18 e 57, 33, 18	——80

STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 5 Score
(number right)..............................

DIRECTIONS: Work these problems on a sheet of scratch paper. Mark as you are the letter of each correct answer.

TEST 6.

G. If you earned $5.00 and spent $3.00, how many dollars would you have left?

a $1.00
b $2.00
c $3.00
d $5.00

---

81. If a freight train travels at the rate of 20 miles an hour, how many miles will it travel in 4 hours?

a 5
b 24
c 80
d 60

---

82. How many pieces of candy can you buy for 15 cents at the rate of 4 for 5 cents?

a 9
b 12
c 15
d 60

---

83. On a road map each one-half inch represents 20 miles. How many miles are represented by 5 inches?

a 10
b 20
c 100
d 200

---

84. Large envelopes that sell for 3 cents each can be had for 30 cents a dozen. How much is saved when bought by the dozen?

a 10¢
b 6¢
c 2½¢
d 9¢

---

85. How many one-inch cubes can be placed in a box 5 inches long, 4 inches wide, and 3 inches high?

a 12
b 23
c 60
d 100

---

86. If you had 20 words in spelling and were marked 90%, how many words did you spell correctly?

a 1
b 11
c 18
d 19

---

87. How many 1½ cent stamps would you give in even exchange for 30 one-half cent stamps?

a 10
b 15
c 20
d 45

GO RIGHT ON TO THE NEXT PAG

TEST 6 (Continued)

A ball team played 25 games and won 7 games more than it lost. How many games did it win?

a 7
b 9
c 16
d 18 ——88

How many sheets of paper 7 inches by 10 inches can you cut from a sheet of paper 21 inches by 30 inches?

a 3
b 6
c 9
d 34 ——89

At 10 cents a foot, what is the cost of enough molding to go around the ceiling of a room 15 feet wide by 16 feet long?

a $3.10
b $6.20
c $31.00
d $24.00 ——90

2½ times what number equals 40?

a 16
b 8
c 15
d 17 ——91

If a 5 inch cube of ice weighs 4¼ pounds, how many pounds will a 10 inch cube weigh?

a 212½
b 8½
c 34
d 50 ——92

What is the number which if multiplied by 2 is 4 less than 3 times 6?

a 6
b 7
c 14
d 8 ——93

Jim says his age is ¼ of his uncle's, and that their ages together total 40 years. How many years difference is there between Jim's and his uncle's age?

a 10
b 20
c 24
d 30 ——94

A tank is fed by two pipes, one of which can fill it in 2 hours, and the other in 3 hours. A third pipe can empty it in 1 hour. If the tank is full and all three pipes are opened and operating to full capacity, how many hours will it take to empty the tank?

a 2
b 4
c 5
d 6 ——95

STOP NOW WAIT FOR FURTHER INSTRUCTIONS

Test 6 Score
(number right)..............................

DIRECTIONS: Mark as you are told the number of the word that means the same or abo the same as the first word.

TEST 7.

H. **blossom** 1 tree 2 vine
3 flower 4 garden —— H

96. **strange** 1 real 2 tell
3 certain 4 unknown —— 96

97. **reply** 1 news 2 answer
3 note 4 open —— 97

98. **liberty** 1 benefit 2 seize
3 freedom 4 aid —— 98

99. **assist** 1 consent 2 help
3 agree 4 overlook —— 99

100. **admire** 1 defend 2 protect
3 approve 4 agree ——100

101. **aim** 1 offer 2 apply
3 haste 4 end ——101

102. **esteem** 1 reject 2 estimate
3 exceed 4 respect ——102

103. **acquire** 1 agree 2 conduct
3 obtain 4 conflict ——103

104. **counsel** 1 glory 2 advice
3 generous 4 satisfy ——104

105. **ample** 1 season 2 plentiful
3 alive 4 autumn ——105

106. **amaze** 1 agree 2 betray
3 surprise 4 contrary ——106

107. **oppress** 1 promise 2 imitate
3 crowd 4 burden ——107

108. **liberal** 1 lonely 2 generous
3 learned 4 real ——108

109. **predatory** 1 soft 2 stationary
3 plundering 4 lasting ——109

110. **obstinate** 1 saucy 2 headstrong
3 satisfactory 4 obedient ——110

111. **eternal** 1 worthy 2 brief
3 endless 4 native ——111

112. **fugitive** 1 fetter 2 accident
3 saddle 4 runaway ——112

113. **legend** 1 ancient 2 legion
3 story 4 leisure ——113

114. **entreat** 1 refuse 2 plead
3 repair 4 reform ——114

115. **notable** 1 terrible 2 brilliant
3 severe 4 famous ——115

116. **diminish** 1 obtain 2 repeat
3 reduce 4 plentiful ——116

117. **envious** 1 amiable 2 jealous
3 boisterous 4 enormous ——117

118. **prophecy** 1 suggestion 2 task
3 substance 4 prediction ——118

119. **corrode** 1 collect 2 disintegrate
3 applaud 4 blame ——119

120. **invariably** 1 probably 2 seldom
3 always 4 motionless ——

121. **detect** 1 remove 2 discover
3 overtake 4 apply ——

122. **reluctantly** 1 gladly 2 instantly
3 certainly 4 unwillingly ——

123. **inefficient** 1 unruly 2 prudent
3 incompetent 4 inevitable ——

124. **facetious** 1 active 2 fragile
3 humorous 4 inventive ——

125. **ambiguous** 1 hard 2 doubtful
3 responsible 4 confident ——

126. **utilize** 1 harmonize 2 identify
3 use 4 invite ——

127. **dejected** 1 slow 2 disheartened
3 weighty 4 destroyed ——

128. **dexterity** 1 safety 2 advantage
3 affection 4 skill ——

129. **defer** 1 affirm 2 delay
3 confer 4 ordain ——

130. **deride** 1 advance 2 encourage
3 ennoble 4 ridicule ——

131. **concede** 1 overrule 2 engage
3 allow 4 endeavor ——

132. **invoke** 1 hover 2 imitate
3 ask 4 invest ——

133. **coerce** 1 varnish 2 adverse
3 treasure 4 compel ——

134. **tarnish** 1 frighten 2 blacken
3 lament 4 torment ——

135. **antecedent** 1 actual 2 pretended
3 previous 4 genuine ——

136. **disparage** 1 divert 2 discredit
3 deprive 4 divide ——

137. **impervious** 1 empty 2 injurious
3 impenetrable 4 important ——

138. **deleterious** 1 harmful 2 just
3 tardy 4 particular ——

139. **presage** 1 wisdom 2 precedent
3 foretell 4 promote ——

140. **surfeit** 1 excess 2 excel
3 survey 4 feature ——

141. **vertigo** 1 greenish 2 truth
3 strength 4 giddiness ——

142. **quondam** 1 quota 2 survivor
3 former 4 future ——

143. **mandible** 1 handcuff 2 jaw
3 law 4 forceful ——

144. **odium** 1 favor 2 blame
3 smell 4 poem ——

145. **chuff** 1 peeve 2 churl
3 cliff 4 laugh ——

STOP

Test 7 Score
(number right)..................

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t

California Short-Form Test of Mental Maturity
Junior High Level · GRADES 7-8-9 · '57 S-Form

DEVISED BY E. T. SULLIVAN, W. W. CLARK, AND E. W. TIEGS

Name ______ Last ______ First ______ Middle

Grade or Occupation ______

SEX (Circle one) M F

School or Organization ______ City ______

Date of Test ______ Month ______ Day ______ Year

Teacher or Examiner ______ (______) Examinee's Age

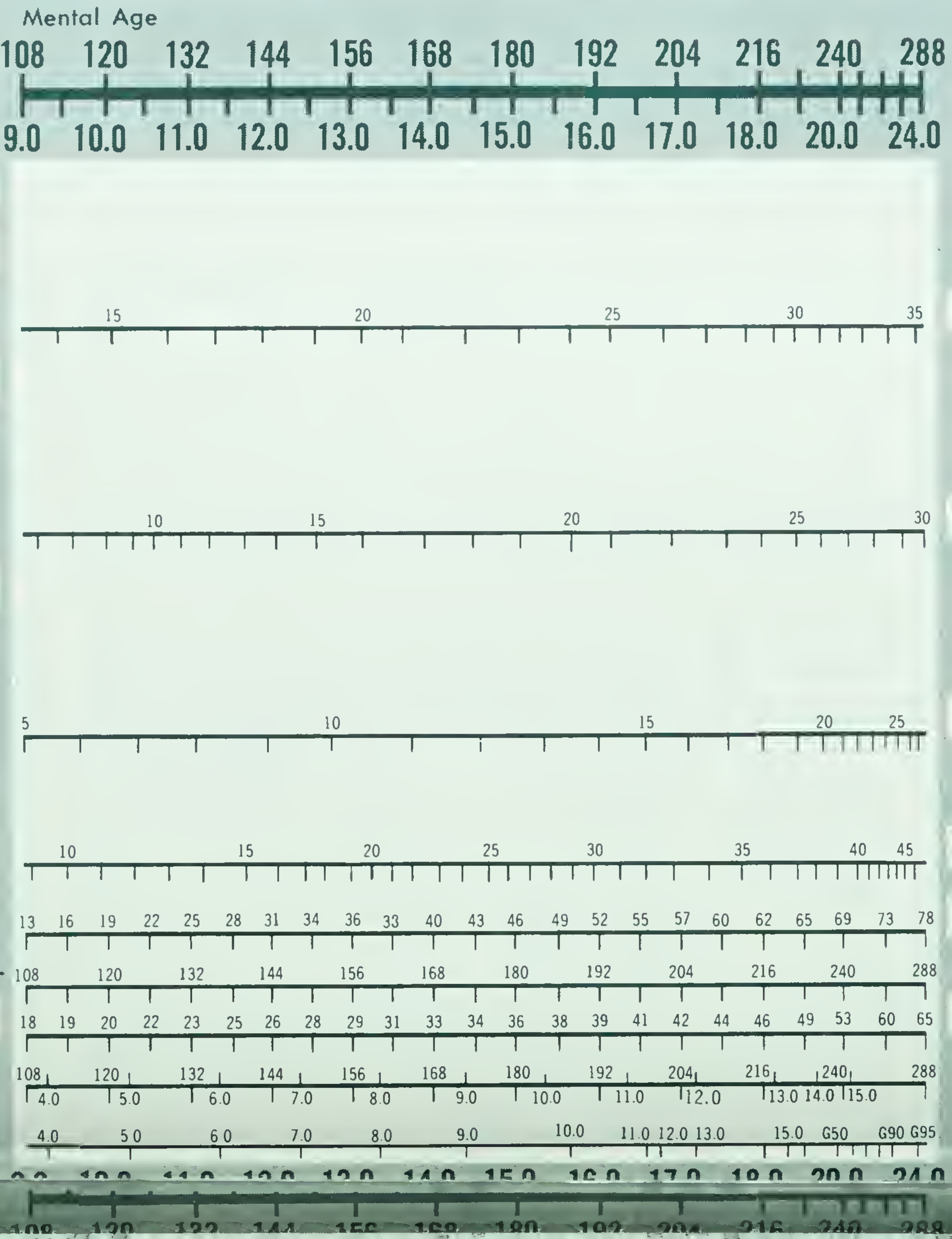
Date of Birth ______ Month ______ Day ______ Year

See MANUAL for instructions.

Factor	Test	Possible Score	Examinee's Score L	Examinee's Score NL	%-ile Rank for C.A.
SPATIAL RELATIONSHIPS	1. Sensing Right and Left	20			
	2. Manipulation of Areas	15			
	TOTAL (1 + 2)	35			
LOGICAL REASONING	3. Similarities	15			
	4. Inference	15			
	TOTAL (3 + 4)	30			
NUMERICAL REASONING	5. Number Series	15			
	6. Numerical Quantity	15			
	TOTAL (5 + 6)	30			
VERBAL CONCEPTS	7. VERBAL CONCEPTS	50			
	TOTAL (7)	50			
	LANGUAGE DATA	80			
	MENTAL AGE				
	NON-LANGUAGE DATA	65			
	CHRONOLOGICAL AGE Average Grade Placement Equivalent				
	INTELL. (M. A.) GRADE PLACEMENT				

DIAGNOSTIC PROFILE

(Chart Examinee's Scores Here)



SUMMARY OF DATA

	LANGUAGE DATA	NON-LANG. DATA	TOTAL DATA
SCORE			$\frac{L + NL}{2}$
M.A.			
divided by C.A.			
equals I.Q.*			
INTELL. (M. A.) G. P.			

*Shift decimal two places to the right before recording.

For comparison and prediction, use I.Q. percentile norms in table entitled "I.Q.'s for Various Populations" in Part 4 of the Manual.

	LANG. I. Q.	NON-LANG. I. Q.	TOTAL I. Q.
Normal Population			
9th Grade			
10th Grade			
11th Grade			
12th Grade			
College Freshmen			
College Sophomores			
College			
Other			

GATES READING SURVEY—FORM 1

For Grade 3 (Second Half) Through Grade 10

Speed and Accuracy, Reading Vocabulary, Level of Comprehension

BUREAU OF PUBLICATIONS • TEACHERS COLLEGE • COLUMBIA UNIVERSITY
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your name here...

ld are you?..When is your birthday?...................................

....Grade.......................Date...

s booklet you will find several tests of reading. will show how fast you read, how well you tand what you read, and how many words you know. Don't waste any time, and don't look at anyone's paper. Follow your teacher's directions. The directions for the first test are given below.

SPEED AND ACCURACY TEST

ons: Read these paragraphs. Draw a line under rd which best answers the question or completes the sentence. Draw a line under **one** word only. Do the exercises as rapidly as you can without making errors.

> **Sample:** All night long the truck driver sat at the wheel of the huge trailer truck. He drove along the twisting highways until dawn. How did he feel then?
>
> **rested** **amused** **tired** **fresh**

e next two pages are more paragraphs similar s sample. When your teacher tells you to turn age, read the paragraphs and draw a line under the word which best answers the question or completes the sentence. Be sure to do the paragraphs in order 1, 2, 3, etc., in which they are numbered.

Do not turn the page until you are told to begin.

teacher: Show the children the sample exercise above. Read the directions with the pupils and make sure that they know what to do. Follow this same procedure when you come to the sample exercises on pages 4 and 6.

IMPORTANT: Be sure to signal STOP at the end of the stipulated time for the Speed and Accuracy Test (6 minutes for grades 3, 4, and 5; 4 minutes for grades 6 and up). No exact time allowances are set for the other two tests. Keep your pupils working vigorously, but give them as much time as you think they need. Twenty minutes, or a little more, is usually sufficient for each test. Detailed instructions for administering and scoring the entire test are given in the Manual (included in each test package).

Raw score.......................... Grade score...................... Age score..........................

lary: Raw score.......................... Grade score...................... Age score..........................

hension: Raw score.......................... Grade score...................... Age score..........................

Averages: Grade score...................... Age score..........................

Reading accuracy:

Per cent correct..........................

Accuracy rating..........................

Printed in U.S.A.

SPEED AND ACCURACY TEST

(Time allowance: 6 minutes for grades 3, 4, 5; 4 minutes for grade 6 and above.)

1. Coal usually comes from mines deep in the ground. Men go underground to dig it out. Then it is brought up to the surface. Coal is found in the

trees   sky   ground   water

2. The huge animals walked slowly, swinging their trunks from side to side. They had big floppy ears and long white tusks. These animals were

tigers   deer   lions   elephants

3. Although the Plains Indians were the first to wear the war bonnet, many other Indians later wore it, too. What Indians first wore the war bonnet?

Plains   Woodlands   Swamp   East

4. Henry tipped his head far back to look at the tops of the buildings. They seemed to reach up almost to the sky. The buildings must have been

short   blue   tall   wide

5. She lapped up the milk in the saucer. Then she curled up on a bed, purred for a while, and went to sleep. What one of the following animals was this?

dog   mouse   pig   cat

6. Man could travel in the air before he had airplanes. He used a balloon to float high above the earth. Balloons were used before

carriages   airplanes   bicycles   feet

7. Alabama has a moist, warm climate. It is a good place for growing cotton and corn. If you were in Alabama in summer, you would expect to feel

dry   cold   freezing   warm

8. Jack wanted to wash his face. First he ran hot water into the basin. Then he turned on the cold water. This made the hot water in the basin

warmer   cooler   disappear   boil

9. Many people visit the Grand Canyon every year. They stand on its edge and look at the bottom of the canyon far below. The Grand Canyon is

deep   small   shallow   dull

10. Waterfalls are used to make electricity.
Falls is one of the largest waterfalls in the
is used to make a lot of

water   pools   electricity   n

11. Furniture and floors are made of hard woo
is often made from wood which is too soft f
ture or floors. From what kind of wood is pape

dark   hard   strong

12. Pure, clean air has no taste nor odor. I
be seen, either. If you looked at a clear gla
which contained only pure air, it would see

empty   colored   wet   d

13. Hippopotamus means "river horse." Hi
good swimmers and can stay under water
time. You would expect to find them nea

deserts   farms   rivers   c

14. Floods can cause a lot of damage. Sc
large dams are built to keep water from
Large dams help cut down the damage ca

dams   water   fish

15. Jane picked up the receiver. She called
ber. After a moment, a voice at the other en
wire said, "Hello." What was Jane using?

telephone   television   radio

16. When the English first came to this cou
Indians taught them how to hunt, fish, and g
How did the Indians act toward the English

unfriendly   helpful   angry   threate

17. In the early days of America, each tow
market day. People drove into town to buy th
to enjoy visiting with their friends. Market d

dull   sad   rainy

18. It is hard to see through a heavy fog.
slowly through the water, and cars drive s
the roads. Boats blow their foghorns to wa

cars   roads   boats   fogh

GO RIGHT ON TO NE

k Finn and Tom Sawyer were often together. ned. They explored an old cave. They made nd took a trip. Huck and Tom were

ds sisters enemies thieves

boat pushed through the icy water of the The land was covered with ice and snow as e eye could see. How did the air feel?

warm cold comfortable

fruit grows on a tree. At first it is small n, and then, as it grows, it becomes red and Vhat fruit is this?

na lemon cabbage apple

mbus called the natives of the Americas ” because he thought he had reached the lies. Who named the American Indians?

ans natives Columbus East Indians

r his name people write “M.D.” He carries lack bag and takes care of people who are helps them to get well. What is he?

er doctor carpenter baker

e than eighteen hundred years ago, the built a wall in England. Some of it is still . This wall must have been

ng paper weak thin

s easy to drive across some deserts because is firm and dry and smooth. In the desert, t always necessary to build expensive

es chairs tables roads

g ago, the Great Plains Indians believed that was made by a great bird flapping its wings. id the Indians believe made thunder?

ds rain lightning bird

frogs croaked all night. At dawn, the birds sing. Cocks crowed and dogs barked at each he city boy wished the country were not so

t sunny noisy green

28. Some trees are called “evergreens” because their leaves do not fall or change color when cold weather comes. When are these trees green?

always never rarely sometimes

29. The tiny song sparrow flew up close to the big gray catbird. The catbird hurriedly flew away from the crusts of bread. The song sparrow must be a good

layer swimmer singer fighter

30. “Aqueduct” comes from two Latin words: “aqua,” which means “water,” and “ducere,” which means “to lead.” What do aqueducts carry?

water Latin sugar lead

31. Mary went to the store to buy ice cream. The man asked her if she wanted vanilla, chocolate, or strawberry. How many flavors of ice cream did he have?

two three one four

32. Aluminum has great strength and little weight. It is often used to make airplanes. It is a very useful metal because it is strong and

heavy light brittle fast

33. When the canals of Holland freeze, the women enjoy skating to market. Children enjoy gliding to school on the ice. What do the Dutch like to do?

ski write skate shop

34. Pear trees are particular. They will not bear fruit where it is too cold. Their fruit will not ripen where it is too hot. The climate they need is

hot moderate cold extreme

35. To us, a plant’s flowers are important because they are beautiful. To the plant, they are important as part of seed-making. Plants make flowers for

seeds warmth beauty noise

36. The firefly is called a “lightning bug” because it gives off flashes of light. Unlike most lights, this kind gives off little or no heat. Firefly light is

hot pink cool neon

STOP HERE

w score (number correct) .... Accuracy: Record number attempted ......, then consult Manual to find accuracy score

READING VOCABULARY TEST

Directions: Look at the first word in each line. Then find another word in the same line that means the same or nearly the same as the first word. Note the number of this word and write its number in the blank spa right. Read line **A**, then line **B**, then line **C** bel the way to do it.

A. dog 1 cloud 2 bird 3 animal 4 dress 5 fish ....

B. red 1 man 2 song 3 tree 4 sit 5 color ....

C. little 1 big 2 small 3 pet 4 book 5 cold ....

Now read each line on this and the next page and find the word that means the same or nearly the same as the first word in each line. Write its number in t space. Do as many lines as you can.

---

1. baby 1 color 2 book 3 child 4 hat 5 song ....

2. rain 1 wood 2 water 3 color 4 bird 5 food ....

3. play 1 seat 2 angry 3 game 4 food 5 farm ....

4. wood 1 water 2 tree 3 color 4 food 5 bird ....

5. ten 1 number 2 end 3 men 4 top 5 this ....

6. sing 1 son 2 long 3 music 4 fruit 5 drink ....

7. penny 1 heavy 2 fence 3 shell 4 coin 5 soft ....

8. step 1 talk 2 farm 3 girl 4 strike 5 walk ....

9. roof 1 water 2 cover 3 bottom 4 shout 5 cloud ....

10. above 1 over 2 under 3 table 4 inside 5 after 1

11. ill 1 strong 2 cold 3 bitter 4 well 5 sick 1

12. nickel 1 metal 2 injury 3 plant 4 bird 5 break 1

13. ninety 1 building 2 money 3 large 4 number 5 unsteady 1

14. curtain 1 number 2 song 3 food 4 bird 5 cloth 1

15. rise 1 before 2 catch up 3 fall under 4 get up 5 anger 1

16. mischief 1 trouble 2 mistake 3 master 4 clothing 5 confusion 1

17. reply 1 swim 2 lift 3 speak 4 food 5 house 1

18. onion 1 stream 2 bird 3 metal 4 plain 5 vegetable 1

19. injury 1 question 2 building 3 interest 4 hurt 5 mark 1

20. scamper 1 fill up 2 sweep 3 run 4 scrub 5 stumble 2

21. quarrel 1 fight 2 pail 3 question 4 bottle 5 shape 2

22. flattery 1 light 2 bird 3 dress 4 attack 5 praise 2

23. reliable 1 helpless 2 dependable 3 dishonest 4 stormy 5 stern 2

24. gallant 1 swift 2 brave 3 ugly 4 hard 5 watery 2

25. suitable 1 garment 2 cottage 3 cheap 4 proper 5 durable 2

26. overlook 1 cheapen 2 miss 3 deceive 4 scorn 5 leap 2

27. execute 1 kill 2 excuse 3 examine 4 preserve 5 shout 2

28. linger 1 hurry up 2 plant 3 trade 4 broaden 5 stay on 2

29. slacken 1 wash 2 whip 3 cool off 4 slow up 5 accuse 2

30. plough 1 bread 2 bird 3 implement 4 illness 5 book 3

GO RIGHT ON TO NI T P

. regulate	1 decide	2 count	3 control	4 assemble	5 divide	31. ______
. minuet	1 comb	2 clock	3 weapon	4 boat	5 dance	32. ______
. extinguish	1 enter	2 contest	3 divide	4 put out	5 leave	33. ______
. recollect	1 numbers	2 remember	3 add up	4 demand	5 steal	34. ______
. obvious	1 cloudy	2 secret	3 tasty	4 selfish	5 apparent	35. ______
. scurvy	1 seaweed	2 overcoat	3 hurrying	4 disease	5 food	36. ______
. charitable	1 stingy	2 boisterous	3 constructive	4 vicious	5 generous	37. ______
. accurate	1 correct	2 polite	3 clean	4 machine	5 measure	38. ______
. gondola	1 pole	2 animal	3 boat	4 engine	5 gardener	39. ______
. hideous	1 noisy	2 stormy	3 selfish	4 ugly	5 shiny	40. ______
. flank	1 company	2 fence	3 fresh	4 side	5 honest	41. ______
. passionate	1 feel strongly	2 full	3 confused	4 stick to	5 dirty	42. ______
. meditate	1 color	2 model	3 argue	4 deceive	5 think	43. ______
. jeopardy	1 freedom	2 flower	3 danger	4 wonder	5 debt	44. ______
. righteous	1 homely	2 just	3 smart	4 sunny	5 old	45. ______
. potent	1 powerful	2 showy	3 thug	4 humble	5 sad	46. ______
. tantalize	1 dance	2 confine	3 oppress	4 tease	5 transform	47. ______
. luminous	1 foolish	2 delicate	3 shining	4 round	5 dangerous	48. ______
. inanimate	1 lifeless	2 idiot	3 unearned	4 impolite	5 insecure	49. ______
. remorse	1 recover	2 regret	3 redesign	4 move	5 defy	50. ______
1. savory	1 pleasing	2 savage	3 stingy	4 unclean	5 shining	51. ______
2. rapture	1 injury	2 noise	3 joy	4 break	5 shame	52. ______
3. indignant	1 correct	2 angry	3 childish	4 colored	5 unknown	53. ______
4. hallucination	1 anteroom	2 federation	3 trap	4 delusion	5 weapon	54. ______
5. transcend	1 excel	2 sail	3 twist	4 slide	5 falsify	55. ______
6. modulation	1 engraving	2 modification	3 modernize	4 moulding	5 repair	56. ______
7. malicious	1 sweet	2 spicy	3 funny	4 courageous	5 spiteful	57. ______
8. pertinacious	1 smooth	2 complicated	3 precious	4 tenacious	5 gracious	58. ______
9. compulsory	1 ordinary	2 required	3 costly	4 voluntary	5 uncertainty	59. ______
0. perceptible	1 tricky	2 expensive	3 visible	4 wasteful	5 modest	60. ______
1. tribulation	1 trouble	2 stream	3 tribal	4 taxes	5 celebration	61. ______
2. bequeath	1 flowers	2 curse	3 give	4 decorate	5 bless	62. ______
3. precocious	1 expensive	2 prepared	3 unwise	4 excellent	5 advanced	63. ______
4. irresolute	1 irony	2 sloppy	3 cowardly	4 hesitating	5 unclean	64. ______
5. confiscate	1 construct	2 confide	3 flatter	4 imprison	5 seize	65. ______

STOP HERE

umber correct (possible 65)................... Number wrong.................... Raw score (number correct minus ¼ number wrong)....................

LEVEL OF COMPREHENSION TEST

Directions: Read each paragraph. Note the space marked **A.** Note the line of words marked **A.** Find the word in line **A** that makes the best sense in space **A** and draw a line under it. Do the same for the
space marked **B,** and for **C** when there is a
sample is marked correctly. If you cannot
of the paragraphs, do not spend too much
it. Go on to the next item.

Sample: My cat is now very old. After it has had dinner it likes to find a soft, warm___A___and go to___B___.

A. glass cold bed lake pig
B. town sleep five swim pieces

1. A new family has just come to live next door. Do they have any children? Here come a boy and girl who are just the right__A___to play with us. It will be fun to play with___B___.

A. write fight live play age
B. family him her door them

2. All day long, the birds flew from tree to tree and sang their songs. They hopped around on the ground, too, and looked for___A___. All night they sat in the trees and___B___.

A. books dogs food stars stories
B. read flew cooked slept danced

3. The honeybee flew through the air. Elaine was afraid it would sting her. It passed by and went to a flower. Bees collect pollen from___A___when they gather___B___.

A. stores flowers policemen steeples clocks
B. houses birds trouble honey hay

4. Grandmother rocked the little cradle a
a quiet song. Back and forth, back and fo
the cradle. Up and down, up and down,
tune of the song. Soon the___A___was

A. lamb blanket grandmother baby
B. asleep old awake crying

5. Tim saw a clown with a painted fac
circus. The clown's cheeks were white and
was bright red. After that, Tim often put
on his___B___and played at being a c

A. mud circus paint jam
B. shoes face shirt tent

6. American deer are graceful, fragile
Except for the few that hunters shoot
they are not useful animals. The reindee
northern regions, however, are strong.
draw loaded sleds across the___A___f
without___B___.

A. beaches ice cream hunters snow
B. tiring shooting company smiling

GO RIGHT ON TO N

t all animals find it easier to walk on four
ough some can be taught to walk on two.
fers to do his walking and standing on two
____, using his____B____for holding things.

arms chairs stilts feet
teeth hands ears eyes

threatened, the squid will shoot forth a
oud of dark ink, which serves as a smoke
nother trick of his is to change color quickly
uently. These two methods are employed
he wishes to____A____from____B____.

e win borrow eat escape
danger smoke plates passengers

ilence of the moon will not be shattered when
avelers arrive there from Earth. Without air,
annot be carried, and so the almost airless
____will remain a____B____place.

n sun sky Earth moon
noisy moist friendly jolly

only diamond field in the United States
overed in 1907 by a farmer living on the land.
ated in southwest Arkansas. Since diamond
e____A____, this discovery was____B____.

iful small scarce easy hard
less valuable lost simple discarded

11. The normal temperature of the human body is 98.6° Fahrenheit. Dogs and cats have a temperature of about 101.5°. This is approximately____A____ degrees higher than the____B____ of humans.

A. two three four five six
B. temperature intensity height density weight

12. With the discovery of penicillin and sulfanilamide, man gained powerful allies in his fight against infectious____A____. He now had the forces which could win some of the major battles against____B____ microorganisms.

A. laughter drugs nature disease humor
B. friendly helpful enemy tinted desirable

13. Oxygen is spring's alarm clock that wakes the sleeping creatures at the bottom of ponds. They exhaust the____A____of oxygen in the water during the____B____and need a fresh supply to stir them up.

A. degree demand supply extent temperature
B. fall winter summer spring day

14. Words sometimes have their roots in an old tale. "Serendipity" is such a word. It was coined from the story about the three Princes of Serendip, who were always stumbling across good things which they were not seeking. Serendipity means the ____A____discovery of something____B____.

A. accidental deliberate infelicitous careful minimum
B. cupidity vexed abominable mature valuable

TURN THE PAGE AND GO RIGHT ON

15. Sago is a food obtained from the trunk of a certain variety of the palm tree. The finest sago comes from large____A____that grow in Borneo and Sumatra. Each tree__B__yields from one to eight hundred pounds of sago.

A. forests vines fruits fires animals
B. branch top root leaf trunk

16. The amount of work electricity can do depends on how many electrons are moving and how much force is pushing them. The quantity of electrons is the current, and it is measured in units called amperes. Volts are the measure of the force. Electric meters measure both amperes and____A____in ____B____called kilowatts.

A. electrons force volts quantity electricity
B. packages units currents scales weights

17. A family in the United States today usually consists of a mother, father, and children. In other parts of the world, larger numbers of people related by blood or by____A____often____B____the family unit.

A. marriage relatives hatred ideals revenge
B. decompose count invent comprise destroy

18. What is the difference in a film between a fade-out and a dissolve? In the fade-out, the screen becomes dark. In the dissolve, the new image appears, as it were, behind the other and grows strong as the old image weakens, until the new image____A____ the____B____entirely.

A. disappears stirs employs dominates impresses
B. camera lens screen actor projector

19. If you examine a newspaper or magazin
graph under a magnifying glass, you will
it is made up of a multitude of tiny d
____A____of the picture increases as the
of dots per square inch____B____.

A. copies amount subject photographer cl
B. varies increases stabilizes decreases e

20. The two forms of knowledge, aesthe
intellectual or conceptual, are indeed diverse,
does not amount altogether to____A____
junction, as we find with two____B____go
its own way.

A. identity contiguity resemblance separation s
B. rods spasms forces targets v

21. The possibility that a population
excellence might lose its fertility deserves____
It is remote, but it should be guarded ag
associating____B____with excellence as one
of the composite which guides the____C____

A. reward chagrin punishment nothing
B. fertility people wealth injury
C. stars feeding conversation breeding

ST

Number correct (possible 43)........................ Number wrong........................ Raw score (number correct minus ¼ number wrong)......

NEALE
ANALYSIS OF READING ABILITY

By M.D. NEALE, M.A., Ph.D.

INDIVIDUAL RECORD SHEET — FORM A

---

me .... School ....

.... Age .... Date of Birth .... I.Q. ....

ily $^{M}_{F}$ .... Examiner .... Date ....

ITIAL INTERVIEW

pearance ....

aring .... Eyesight ....

erests ....

rtinent Emotional Difficulties ....

titude to Reading. Likes "a little" .... "a lot" .... "not really" ....

titude to School. Likes "a little" .... "a lot" .... "not really" ....

IALITATIVE ASSESSMENT

TEST SUMMARY

tap
but
big
gate

man
red
show
chicken

rat
pet
star
sport

SUPPLEMENTARY DIAGNOSTIC TEST 3. Blending and recognition of syllables.

1. c- old d- ear l- ock t- ask
2. m- ouse l- augh s- ight b- urnt
3. ch- ill br- ake th- ief gr- owl
4. pic- nic thr- oat fly- ing str- ong

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R

6 EVEREST (139)	Mis	Sub	Ref	Add	Oms	Rev
Realising the						
necessity for						
conserving						
the strength of						
the team, the						
leader decided						
to pitch an						
intermediate						
camp. The						
initial						
enthusiasm and						
anticipation						
of attaining						
the final camp						
had been						
subdued						
by the recent						
mishap						
in which one						
member had						
fallen into a						
crevasse.						
Although the						
rescue had been						
accomplished						
magnificently,						
it was obvious						
that the						
incident						
had hampered						
the original						
programme. The						
men accepted						
the leader's						
decision						
with relief.						
The tedious						

6 continued	Mis	Sub	Ref	Add	Oms
crawl to the					
plateau against					
incessant winds					
of varying					
violence had					
challenged					
their endurance					
to the limit.					
Every step at					
this height					
required					
will-power.					
Immediately					
ahead lay an					
unforeseen rise					
from which,					
by great					
misfortune, all					
the tracks of the					
advance party					
had disappeared.					
Rest was					
essential if					
the men were to					
withstand the					
arduous					
conditions in					
the concluding					
stages of the					
assault					
upon this					
unconquered					
peak.					

Errors ....

Time ....

Comprehension ....

Questions

1. What did the leader realise his men needed?
2. What did the leader decide to do?
3. How did the men feel about the leader's decision to stop climbing? Were they pleased or annoyed?
4. What incident had hindered their progress?
5. What had made them slacken their pace of climbing to a crawl?
   Or What made them go so very slowly?
6. What lay just ahead of them?
7. What piece of bad luck had the team noticed?
8. Why would it be very exciting to reach the peak?

SUPPLEMENTARY DIAGNOSTIC TEST 1. What are the names and sounds of these letters ?

a c o e
d f h l t b k

u i m r n s z v x w
p y p g j

SUPPLEMENTARY DIAGNOSTIC TEST 2. Auditory discrimination through simple spelling.

Van Wagenen Analytical Reading Scales

Junior Division — Form M

M. J. VAN WAGENEN
University of Minnesota

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M. J. Van Wagenen, Minneapolis, Minnesota

PART III—READING SCALE

Sample Paragraph

was Perez, a friar, on whom
nbus called with his little son
, and explained his need for
and ships to prove the world
und, The friar interested his
d, Queen Isabella of Spain, in
lans of Columbus. But when
ree ships that carried Columbus
erica sailed from Spain, Diego
eft to stay at the palace of the
until his father should come

A. The paragraph is mainly about
1. Perez, the friar 2. Queen Isabella 3. the ships in which Columbus sailed 4. the voyage of Columbus 5. the palace of the Queen A

B. Perez had been a friend of
1. Columbus 2. Diego 3. Queen Isabella 4. Diego's father 5. the father of Columbus B

C. Diego was left at the Queen's palace because he was
1. a friar 2. too young 3. not interested 4. afraid to go 5. didn't know his father was going - - - - - - - - C

D. When Diego was left at the palace, he was
1. happy 2. glad 3. relieved 4. joyous 5. unhappy - - - - - - - - D

Answers

	1	2	3	4	5
A	⋮	⋮	⋮	▮	⋮
	1	2	3	4	5
B	⋮	⋮	▮	⋮	⋮

'ar up in the Canadian forests, at the end of a
journey of some four hundred miles from the
st trading post, Otelne and his Indian family
their tent beside a lonely river with no other
y within twenty miles. With his son of twelve,
akes a two day journey setting his traps in a
circle. In a day or two, they make the round
e traps on snowshoes, while his big dog pulls a
gan. At nightfall they make a shelter of boughs
uild a fire in front of it to keep away the wolves
ell as to keep themselves warm. If they have the
to kill a bear, they will have meat enough for
s. Through the months that follow, the mother
daughter skin the animals and smoke the meat
h the men bring in. When the weather begins
ow warm again, they start their canoe trip back
e trading post for traps, a rifle, fish line and
s, axes, knives, blankets, and white men's clothing.

1. The paragraph is mainly about
1. hunting 2. Canadian forests 3. canoeing 4. hunting in Canadian forests 5. activities of an Indian family - - - - - - - - 1

2. The life of the Indian family while in the Canadian forests is
1. lively 2. sorrowful 3. uneventful 4. lonely 5.luxurious - - - - - - - 2

he gambusia is the little fish that preys on the
of mosquitoes. From its native habitat in the
nd waters of the South Atlantic and Gulf States,
s been transported into California, Hawaii, Italy,
and Jugoslavia. It is also indigenous to the
and brackish waters of Cuba and Mexico.
ough the gambusia prefers clear brooks and ponds,
rtheless, it survives in dirty ditches and foul
hes, where its nourishment abounds. Its colors
with its habitat. specimens from dark swamps
darker bodied. The females greatly exceed the
s in number. They are also about twice the mag-
le of the males. Next to mosquitoes, they favor
h diet, gulping down their own kin.

3. The paragraph is mainly about
1. mosquito-destroying fish 2. fresh water fish 3. Cuba 4. females 5. swamps - - - 3

4. The condition that the gambusia likes best is
1. swamps 2. stagnant ponds 3. clear brooks 4. dirty ditches 5. foul marshes - - - 4

5. The gambusia have been sent to
1. Cuba 2. Mexico 3. South Atlantic States 4. Italy 5. Gulf States - - - - - - 5

6. The color of the gambusia
1. is bright 2. varies with the place 3. is always light 4. is always the same 5. is always dark 6

7. Which of these words best describes the gambusia?
1. useless 2. harmful 3. delicate 4. adaptable 5. fastidious - - - - - - - - 7

3. The chief of the sixteen gates in the brick and mud wall surrounding Peshawar opens on its leading business street or Street of the Story Tellers. This street is paved, but the rest of the city consists mostly of unpaved squares and markets and narrow streets and byways. Riding donkeys astride on it, Mohammedan ladies in their all-enveloping veils look like white ghosts. Caravans of camels, horse carts, bicycles, and an occasional motor car go up the street beside turbaned, neatly uniformed soldiers on horseback. Lining the street are rows of shops in which one may buy waxwork, cloth, oriental needlework, and carved wood curios. A perpetual din rises from the copperware bazaar where workers sit all day hammering out trays, dishes, bowls, and other artistic and useful articles. The tall minerets of the mosque of Mohabbat Khan are in sharp contrast with the flat, monotonous roofs of the mud and brick houses.

4. When Brandt, because of rash acts, found himself in danger of being seized by the British, he sought shelter at the farmhouse of a relative, although he knew that the family would suffer punishment if the British heard that he had been there. Early in the next afternoon, Bob, the youngest son of the household, burst in with the news that a band of British soldiers were on the way to search the farm for Brandt. "There is a boat on the riverbank," suggested Ben, the older son. As Brandt dashed out of the house, he nearly ran into Hetty, a girl of twelve who was sprinkling some cloth to bleach it in the sun. "Tell the soldiers I have gone up the road while I get away in the boat," he paused to say.

"I can't do that, cousin, it would not be true."

"But you would not betray me to the British, Hetty?"

"Run! I shall not tell them which way."

Just then the band of British were heard approaching.

"Quick! Lie down while I cover you."

When the captain of the band rode up where Hetty was sprinkling her cloth and inquired if she had seen a man running by, she replied, "Yes, sir, but I promised not to tell which way."

"But you must or it will be the worse for you."

"He said he was going for the boat but asked me to tell you that he had gone up the hill."

5. A little Indian girl, Sacajawea, had been captured and carried away from the mountain home of the Shoshones by the Minitaris of the Dakota plains. One day a French Canadian trapper, Charboneau, bought her from her captors, led her away to his home among the Mandan Indians, and later married her. A few years later, there came to the Mandan village on the Missouri river two white men, Captain Lewis and Lieutenant Clark, looking for someone to show them the way up the Missouri river and through the Rocky Mountains at the source of the river. As Sacajawea came from the Shining Mountains, she would show them the way. With her husband, she set out with the white men's party. One day they were chased by a grizzly bear which a bullet brought down just in time to save their lives. Another day their canoe was tipped over by the wind. At last, when they came upon the Shoshones, Sacajawea burst into a dance, waving her arms and uttering cries. She had found her own people.

8. The paragraph is mainly about
1. Mohammedan ladies 2. appearance of Pesh ar 3. street traffic of Peshawar 4. copperware ba rs 5. mosque of Mohabbat Khan - - -

9. Peshawar is a city of
1. Japan 2. Mexico 3. Switzerland 4. in 5. India - - - - - - - -

10. Most of the streets of Peshawar
1. are paved 2. are wide 3. are narrow re lined with shops 5. end in a city gate -

11. The buildings of Peshawar are
1. tall 2. ornate 3. low 4. steep-r ed 5. narrow - - - - - - -

12. The story is mainly about
1. Brandt's escape from the farm 2. British p uit of Brandt 3. Hetty's danger 4. how Hetty ed Brandt from capture 5. Hetty's truthfulness

13. When Brandt heard the news, he as undoubtedly
1. fearful 2. angry 3. grief-stricken 4. d ng 5. cowardly - - - - - - -

14. Hetty's ruse in dealing with the Bri sh soldiers was
1. disgraceful 2. deplorable 3. clever 4. lf-protective 5. cowardly - - - -

15. Hetty was really
1. insincere 2. deceitful 3. spiteful 4. s sh 5. courageous - - - - - -

16. In trying to get away from the f m Brandt was trying to
1. annoy the British soldiers 2. save hi elf 3. save the Atwood family from trouble 4. st up resentment against the British soldiers 5. ng trouble upon the Atwood family - - -

17. In coming to the Atwood home for o-tection, Brandt was
1. honoring them 2. despicable 3. coura us 4. inconsiderate 5. self-sacrificing - -

18. While among the Minitaris, Sacajawea lt
1. sad 2. joyful 3. fearful 4. happy 5.

19. Lewis and Clark were looking for
1. the Missouri river 2. the Mandan v ge 3. the Dakotas 4. a way across the Rocky M in-tains 5. the Minitaris - - - -

20. Charboneau lived among the
1. Canadians 2. Shoshones 3. Minitaris 4. Da tas 5. Mandans - - - - - - -

21. The Mandan Indians lived
1. in Canada 2. in the Dakotas 3. on the Mis uri river 4. in the Shining Mountains 5. amon the Rocky Mountains - - - - - -

hen Bamboo was brought to live in the Zoo, five
ago, he was just a baby. One of the principal
lties in keeping a gorilla alive in captivity is
ckness and loneliness. To keep him company,
was shipped with him from Africa. They be-
great playmates and are great playfellows
although Bamboo is growing rapidly toward the
n a gorilla's life where he turns brutally savage.
le of times a young ape has been placed in the
vith them. Bamboo treated the newcomer like
-lost brother—someone to wrestle about with.
however, is changed into a biting, tearing,
ng little demon until the stranger is removed.

22. The paragraph is mainly about
1. Bamboo 2. an ape 3. Lizzie's fighting 4. a zoo
5. Bamboo and Lizzie - - - - - - - 22

23. When a newcomer is put in the cage, Lizzie becomes
1. friendly 2. cowardly 3. sorrowful 4. afraid
5. jealous - - - - - - - - - - 23

24. Gorillas require
1. much care 2. companionship 3. large quantities of food 4. freedom 5. much exercise - - 24

25. When about five year of age, gorillas usually
1. become homesick 2. become dangerous 3. become lonely 4. die 5. become gentle - - 25

e colonial farmer was his own blacksmith, car-
. and tanner, and sometimes his own shoemaker
l. Every housewife could spin and weave, make
nd tallow candles. He hunted and fished for
s well as sport. The furs he traded for money or
es. He cut hay with a scythe and his grain with
le and threshed it with a flail. Plows, harrows,
rts were the only farm implements drawn by
or oxen. Even his furniture was usually home-
People who lived in the same locality helped one
r in clearing land, in harvesting and corn
g, and at quiltings and barn raisings. These
ings of neighbors to work together, called
" were rollicking social events enjoyed to the
vhile weddings were joyous occasions at which
was a great deal of gaity and rough sport in
st with the solemnity of the long religious
es.

26. The paragraph is mainly about colonial
1. home furnishings 2. life on the farms 3. industries 4. farm tools 5. social gatherings - - 26

27. A "bee" was a neighborhood gathering for
1. doing work 2. a wedding 3. a dance 4. religious services 5. celebrating some event - - 27

28. Life on a colonial farm was
1. artificial 2. refined 3. simple 4. degrading
5. luxurious - - - - - - - - - 28

29. Quilts were made by
1. neighborhood gatherings 2. the whole family
3. the men in winter 4. men who were quilters
5. the women of the family - - - - - - 29

hile a few of the settlers in the English colonies
en fishermen, butchers, carpenters, and trades-
he greater part had been farmers in their mother
ies, and it was natural that they should bring
hem to the New World the grains, fruits, vege-
and domestic animals which they raised in their
omes. Wheat, barley, oats, rye, peas, beans,
es, onions, and apples were the principal culti-
plants of Great Britain when Englishmen began
tle America. All of these plants were brought
New World by the early settlers. Maize or
corn, the potato, both white and sweet, the
kin, squash, and tobacco are native American
which the pioneers soon learned to cultivate.
ommon domestic animals, cattle, horses, swine,
and poultry all came to us from Europe. The
alone is a native of the western continent.

30. The paragraph is mainly about
1. native American products 2. farmers of Great Britain 3. occupations of the colonists 4. where our plants and animals came from 5. domestic animals in America - - - - - - - 30

31. Most of the people who settled in the English colonies had been
1. carpenters 2. tradesmen 3. farmers 4. butchers
5. fishermen - - - - - - - - - 31

32. The Engish colonists in America brought with them
1. potatoes 2. squashes 3. wheat 4. corn
5. tobacco - - - - - - - - - - 32

33. One of the principal vegetables raised in Great Britain before the colonists came to America was
1. squashes 2. potatoes 3. sweet potatoes
4. cabbages 5. pumpkins - - - - - - 33

9. Among the artificial causes of famine may be classed war, and economic errors in the production, transport, and sale of food-stuffs, while among the natural causes may be classed all failures of crops due to excess or defects of rainfall and other meteorological causes, or to the ravages of insects and vermin. The natural causes are still mainly outside of our control, though science enables agriculturists to combat them more successfully, and the improvement in means of transport allows a rich harvest in one land to supplement the defective crops in another. In tropical countries, drought is the commonest cause of a failure in the harvest, and where great droughts are not uncommon — as in parts of India and Australia — the hydraulic engineer comes to the rescue by devising systems of water storage and irrigation. It is less easy to provide against the evils of excessive rainfall, frost, hail and the like. The experience of the French in Algiers shows that it is possible to stamp out a plague of locusts, such as is the greatest danger to the farmer in many parts of Argentina. But the ease with which food can nowadays be transported from one part of the world to another minimizes the danger of famine from natural causes, as we can hardly conceive that the whole food-producing area of the world should be thus affected at once.

34. The paragraph is mainly about
1. agriculture 2. transportation 3. effe of famines 4. causes of famines 5. relief of f ne

35. Crop failures in tropical regions are m tly due to
1. shortage of rainfall 2. insects 3. intens ieat 4. excessive rainfall 5. frost - - - - -

36. The greatest danger to the farmer of A en-tina is
1. too much rainfall 2. insects 3. frost too little rainfall 5. hail - - - - - -

37. Science has succeeded in
1. wiping out famines 2. controlling me conditions leading to famines 3. relieving f nes 4. wiping out the cause of famines 5. cont ling natural causes of famines - - - - -

38. The usual cause of crop failure in us-tralia is
1. frost 2. locusts 3. too much rainfall hail 5. too little rainfall - - - - - -

39. Among the artificial causes of famine
1. too little rainfall 2. warfare 3. frost too much rainfall 5. plague of insects - - -

10. In a typical flower, there are four distinct whorls, an outer calyx of sepals, usually green in color and protective in function; within it is the corolla of petals, commonly highly colored to attract insects; next the androecium of stamens, arising from receptacles within the petals and consisting each of a stalk, the filament, on which is an anther containing the pollen sacs from which the pollen is ultimately discharged, and in the center the pistil or gynoecium of carpels which is made up of stigma, style, and ovary, and after flowering, is enlarged to form the fruit and contain the seeds. The parts of the calyx are sometimes free or separate, at other times united; in the former case, the calyx is polysepalous, in the latter gamosepalous. A corolla is dipetalous, tripetalous, etc., according as it has two, three, etc., separate parts; the general name polypetalous is given to corollas with separate parts, while those in which the parts are united are monopetalous, gamopetalous, or sympetalous. The filaments may cohere to a greater or lesser extent, the anthers remaining free. Thus, all the filaments may unite to form a tube around the pistil, in which case the term monodelphous is used, or they may be arranged in two bundles (diadelphous) as in the pea. When a gynoecium consists of a single carpel, it is simple or monocarpellary, when composed of several carpels, each of which has its own ovary, style and stigma, it is compound or polycarpellary.

40. The paragraph is mainly about
1. structure of flowers 2. functions of differen arts of flowers 3. variations in flowers 4. ev tion of flowers 5. interrelationship of different p s of a flower - - - - - - - - - -

41. The pistil contains
1. petals 2. stigmas 3. sepals 4. a hers 5. filaments - - - - - - - -

42. When the petals of a flower are s ara the corolla is
1. gamopetalous 2. dipetalous 3. monop lous 4. polypetalous 5. sympetalous - - -

43. The stamens are usually
1. bearers of the pollen sacs 2. parts the corolla 3. protective in function 4. reen 5. highly colored - - - - - - -

red had left the brush-fire which he was watch- chase a rabbit far into the forest back of his Suddenly he heard a crackling noise behind When he looked around, the forest was ablaze. ow spot there was a large, hollow, green log big h to hold him. But first he stopped one end of with clumps of wet grass and mud. Then he d the log with mud and poured on it water he dipped up in his cap. He also cleared away dry sticks. Then he rolled himself in mud and and crawled into the log, feet first, just as the me near. Gray squirrels scampered before the nd a coon crawled into the log at his feet. In minutes the whirlwind of flames had passed the heat became less, and Fred crawled out, the coon unharmed.

44. The paragraph is mainly about
1. wild animals 2. a forest fire 3. how Fred saved himself 4. Fred's carelessness 5. a rabbit chase 44

45. The forest fire started from
1. a hunter's cigarette 2. Fred's playing with fire 3. a bolt of lightning 4. Fred's setting it on fire 5. the brush fire - - - - - - - - 45

46. The log into which Fred crawled was
1. on a hill 2. in a dry spot 3. in an open space 4. in a wet place 5. on a brush pile - - - 46

t the time Ansgar arrived in Sweden in the century, iron was in universal use in the country d been so since the fifth century before Christ. s during this period, the Iron Age, that the tants of Sweden first became acquainted with silver, lead, and glass, as well as iron. As works n could not, like those of bronze, be produced y casting, the smith's craft came to have far r significance during this age. Prior to the Iron here was another period, the Bronze Age, when e of iron was altogether unknown. Weapons ols were then made of bronze — a mixture of and tin. Gold was the only other metal known this period, which continued from about the th century B. C. to the fifth century B. C. us to the Bronze Age, the people of Sweden in complete ignorance of the use of any metals. were compelled to make their weapons and ents of such materials as stone, horn, bone, and This period is recognized as the Stone Age.

47. The paragraph is mainly about
1. metals used in Sweden at different periods 2. Ansgar's arrival in Sweden 3. Iron Age in Sweden 4. weapons used in different ages 5. what bronze is made of - - - - - 47

48. Which of these came into use during the Iron Age?
1. bronze 2. gold 3. copper 4. brass 5. horn 48

49. Five thousand years ago, the people of Sweden made their tools of
1. stone 2. bronze 3. copper 4. iron 5. brass 49

50. Which of these came into use during the Bronze Age?
1. silver 2. brass 3. bone 4. gold 5. glass 50

51. Articles of iron were made by casting and also by
1. baking 2. hammering 3. heating and hammering 4. cutting 5. pressing into shape - 51

52. Ansgar lived
1. before the age of Christ 2. during the Stone Age 3. during the Bronze Age 4. before the Stone Age 5. during the Iron Age - - - 52

53. Articles of bronze could be made only by
1. casting 2. baking 3. hammering 4. heating and hammering 5. cutting - - - - 53

uring the twelfth century, Bruges, one of the important parts of the Netherlands, was ruled unt Bordewyn. In order to find out the needs ants of his people, he often went about among dressed as a farmer. Once when he had left stle and had been walking in the cold for some he saw the lights of a house in the distance. he reached the cottage, knocked, and went in, nd himself at a wedding party given by a farmer daughter had been married that day. After he ung and feasted with them until late, they let ave much against their will.

54. The paragraph is mainly about
1. the Netherlands 2. Bruges 3. a ruler 4. a wedding 5. a farmer - - - - - 54

55. Count Bordewyn was ruler of
1. the Netherlands 2. a city 3. a castle 4. a wedding party 5. Bruges - - - - 55

14. The Chinese work hard for a living, but when they have enough to live on, they live on it, going to the theatre, listening to a scholar, admiring art of an earlier time, or leisurely walking in beautiful scenery, instead of trying to augment their wealth, as many Westerners do, to buy works of art at fabulous prices to impress their neighbors. Among ourselves, the people who are regarded as moral luminaries are those who forego pleasures themselves and find compensation in interfering with the pleasure of others. In China, a man is expected to be respectful to his parents, kind to his children, generous to poor relations, and courteous to all — duties not very difficult to fulfill but actually carried out. They admit in theory that there are occasions when it is proper to fight, and in practice that these occasions are so rare that military leaders who appeal to force find that no one not even their own soldiers, take them seriously; whereas we hold in theory that there are no occasions when it is proper to fight and in practice devote a part of the wonderful skill and efficiency we develop in manufacture to the making of guns, poison gases, and airplanes to kill each other wholesale, while the rest is devoted to making of ships, automobiles, telephones, and other means of living luxuriously at high pressure.

56. The paragraph is mainly about differe es in Chinese and Western
1. governments 2. ideals 3. manufacturing art
5. wars - - - - - - - - - -

57. The Chinese aim at
1. ease 2. idleness 3. enjoyment 4. p rty
5. ignorance - - - - - - -

58. People of the Western nations seem st to admire
1. learing 2. art 3. sincerity 4. co esy
5. riches - - - - - - -

59. As compared with the Chinese, the pe le of the Western nations are more
1. energetic 2. courteous 3. respectful 4 on-tented 5. happy - - - - -

15. Originally a Greek tribe lived in several clan villages in the valleys around some hilltops. On the hill was the place of common worship. A wall around the temple easily turned it into a citadel. In hilly Greece, many of these citadels grew up close together. Very early some of the tribes combined into larger groups. Sometimes a stronger tribe would conquer the others, make them tear down their citadels, and move their temples to its citadel. This is the way Theseus is said to have enlarged Athens, by taking into it the four Ionic tribes of Attica. All the inhabitants continued to be free citizens of Attica and became Athenians. In Laconia, however, the other tribes were conquered and held in subjection by Sparta. The inhabitants of Laconia were never granted citizenship nor did they ask for it. They wanted to recover their independence. Lycurgus made Sparta an army to hold them down. In other territories as large as Attica and Laconia, there were several independent cities. In Boeotia, for instance, there were twelve independent cities, all rivals of one another.

60. The Greek tribes first lived
1. in citadels 2. in cities 3. on hilltops in
temples 5. in valleys - - - - - -

61. Athens was the chief city of
1. Lycurgus 2. Sparta 3. Boeotia 4. ica
5. Laconia - - - - - - - -

62. The chief city of Laconia was
1. Sparta 2. Perseus 3. Athens 4. B tia
5. Lycurgus - - - - - - -

63. What feeling did the cities of Boeotia ve toward one another?
1. helpfulness 2. jealousy 3. kindness it-terness 5. ridicule - - - -

64. Of what was Sparta the principal city
1. Attica 2. Boeotia 3. Laconia 4. the en-ians 5. the Ionic tribes - - - - -

16. It was a day and a night now since little Joe had been missed by his mother. He must have wandered out in the tall grass of the broad prairie by the side of which stood his mother's little wooden shanty. Everywhere around the village that hot summer day the mother and neighbors had called and looked in vain. Phil was only a bird dog but his master got him to understand by showing him the boy's shoes. For hours he followed the child's trail, closely followed by his master and the mother and at a distance by a band of neighbors. Not until dark, however, did they come upon Joe, miles from his home, fast asleep in the grass, near a little bubbling brook.

65. The paragraph is mainly about a
1. bird dog 2. lost child 3. prairie grass 4. e's
mother 5. search for Joe - - - -

66. When Joe was found, he must have felt
1. playful 2. weary 3. angry 4. big 5. ann ed

he protein of the sweet potato, ipomoein, is
in the nutritionally essential amino-acids that
se proteins than that obtained from the white
. Proteins, those complex compounds of nitro-
e necessary constituents of any diet. Ordinarily
ain our greatest amount of these from meat,
r milk. Potatoes and sweet potatoes are more
ant as sources of starch or fuel-energy-giving
al, as are also the cereal foods made from wheat,
nd oats. Potatoes of both varieties, however,
proteins that are superior in nutritional quality
e of corn and white bread. Not all the nitrogen
te potatoes is due to protein but to other sub-
of less food value that are not found in the
potato. The sweet potato also contains more of
n A, which is also found in spinach, milk, and

Vhen William Gladstone, the great English
nan, was a boy of six, he was sent by his father
e with a nobleman. His father cautioned him
the lordship's table he should do just as he did.
his guests had been served, his lordship looked
m his plate and sneezed several times. William
neezed the same number of times. A little later
lship exclaimed "A beastly draught," and wheel-
ound in his chair, called to his valet to close a
hat had been left open. As soon as the door was
William repeated the exclamation and wheeling
l in his chair gave a similar command to the

ere was a silence, his lordship's brow netted, his
osed, and he gave the boy such a look that he
ed from head to foot.
ee here, William, are you imitating me?"
h, no, your lordship," William stammered, "I am
what father told me to."

wenty-seven years ago, Jean Val Jean had
d from prison. In the meanwhile he had
ned and was now Monsieur Madeleine, mayor of
————. At Arras, a day's drive away,
r man was being tried as Jean Val Jean. To
imself up to save the innocent victim would
exchanging the house he had built, his books,
itings, his walks in the fields, for the galley
the iron collar, the chain at his foot, the dungeon,
ank bed, horrors which he knew so well! For
he had walked the floor. But now the carriage
l ordered was waiting. A few miles along and
el gave out. It could not be fixed until the next
nd no other conveyance was to be had to reach
in time for the trial. He had faithfully
sted every means to reach Arras. Then a woman
d to rent him her carriage. In this he reached
urt room at Arras just in time to hear two
ts swear that the prisoner was Jean Val Jean.
s evident that the man was lost until the new-
pushed through the crowd and exclaimed,
se the accused. He is not the man you seek.
ean Val Jean."

67. The paragraph is mainly about
1. cereals 2. nitrogen 3. proteins 4. white potatoes 5. sweet potatoes - - - - - 67

68. We obtain most of our proteins from
1. meat 2. corn 3. oats 4. wheat 5. potatoes 68

69. For producing energy, we eat such a food as
1. meat 2. potatoes 3. milk 4. eggs 5. spinach 69

70. Ipomoein is a
1. starch 2. vitamin 3. fat 4. protein 5. sugar 70

71. Porteins are compounds of
1. ipomoein 2. oxygen 3. nitrogen 4. starch 5. vitamins - - - - - - - - 71

72. As a food, sweet potatoes are
1. of greater value than earlier thought 2. of no value 3. our most valuable food 4. of little value 5. of less value than earlier thought - - - 72

73. Which of these is not found in sweet potatoes?
1. protein 2. vitamin A 3. starch 4. nitrogen compounds 5. fat - - - - - - 73

74. The paragraph is mainly about
1. his lordship's guests 2. a dinner party 3. his lordship's anger 4. William's obedience 5. William's visit - - - - - - 74

75. The command of William's father was
1. harsh 2. intended to get William into trouble 3. intended as a joke 4. foolish 5. misunderstood - - - - - - - - - - 75

76. By his command, William's father was thinking of his son's
1. conversation 2. dress 3. courtesy 4. actions 5. table manners - - - - - - 76

77. The punishment that Jean Val Jean faced was one of
1. monotony 2. torture 3. isolation 4. hard work 5. idleness - - - - - - 77

78. In giving himself up, Jean Val Jean acted very
1. stupidly 2. courageously 3. penitently 4. shamelessly 5. cowardly - - - - - - 78

79. How did the prisoner probably feel toward the two convicts?
1. sorry 2. forgiving 3. revengeful 4. thankful 5. helpful - - - - - - - - 79

80. As a citizen of M———, Jean Val Jean was
1. refined 2. vulgar 3. depraved 4. arrogant 5. dishonest - - - - - - - 80

81. How did the prisoner probably feel at Jean Val Jean's statement at the end of the trial?
1. fearful 2. astonished 3. angry 4. unconcerned 5. revengeful - - - - - 81

20. During the Middle Ages when the soil was the main source of wealth, trade but slightly developed, manufacturing still less, and mining not at all, certain social consequences resulted from the predominance of the landed interest—the feudal system with its obligations to service in the field, limitation of the right of representation to owners of land, exemption of landed proprietors from taxation, and contempt for every kind of labor or profession not connected with the land. The overthrow of this constitution of society began with the Reformation in 1517 and was completed by the Revolution of 1789; but neither religion nor the revolution was the cause of the transformation. That was to be found in the accumulation, through trade, of capital in the form of movable property as distinguished from land, in the hands of the bourgeoisie. Although by law the great land owners and clergy continued to be the ruling class, they became more and more dependent upon the rich bourgeoisie or even obliged to resort to trade to obtain wealth. The Revolution of 1789 merely gave legal recognition to this change. As a class, they soon began to separate into two divisions, one made up of those dependent on their daily labor for subsistence, and the other composed of the possessors of wealth, who became the ruling class. Suffrage and representation were soon restricted to the possessors of capital as measured by their payment of direct taxes, while the burden of taxation, through a system of indirect taxes upon articles of family consumption, was soon shifted to those with large families and no property, whose maintenance by labor was looked upon with social dishonor.

82. During the Middle Ages and the trans -mation period following it, the right f representation was confined to

1. property owners 2. professional people 3. k-ing men 4. soldiers 5. shopkeepers -

83. The ruling class during the Middle s was the

1. traders 2. military leaders 3. working en 4. professional men 5. land-owners - -

21. In the garden in front of a little one room cottage among the rocks sat Pietro, a lad of twelve, and his grandmother, Elizabetta, braiding straw. He had to do the work of his little sister, Bianca, who had not lived, when he wanted to do a man's work. When Elizabetta saw the splices in his work, she chided him, "Bianca would have been patient, as was your mother." Once when he went to the market to buy more straw for Elizabetta, he stopped to look at a picture that a white haired artist was painting. "There is something wrong with your picture, sir; one shadow is longer than the other." "And what do you do, my boy?" asked the painter. "Paint, as everyone else in Italy seems to do?" Pietro did not want to tell what he did, but at last the artist drew his story from him. A few mornings later when Pietro and Elizabetta returned from church, the artist was sitting in front of their cottage. After some words of greeting, the stranger suggested to Elizabetta, "Down in the city there is a girl of fifteen who longs to learn the art of strawbraiding and who could teach her better than you? She could take Pietro's place while he comes to live with me."

84. The paragraph is mainly about

1. an artist 2. Pietro's good fortune 3. Pi 's sister 4. Pietro's work 5. Pietro's grandmo r

85. How did Pietro feel about the work he d to do?

1. was proud of it 2. enjoyed it 3. was ash ed of it 4. did it patiently 5. boasted about it

86. In getting Pietro's story out of him, e artist must have been

1. arrogant 2. domineering 3. frightening 4. n-pathetic 5. ludicrous - - - -

87. To Elizabetta, the artist was

1. overbearing 2. deceitful 3. tactful 4. ch ng 5. sarcastic - - - - - -

22. Our cottage by the seashore is one of a half dozen in a park that has been owned by my father's people since the days of the early settlers. The cows of a farmer feed over it, hunters shoot game there, and people come every summer to pick berries. At first, father built a log cabin, just for ourselves. We lived like Indians that summer, going barefooted and without hats and in our oldest clothes. Our new cottage was the last of the half dozen to be built there.

88. The paragraph is mainly about

1. a park 2. a log cabin 3. Indians 4. a m 5. a seaside home - - - - -

89. The park contained

1. wild flowers 2. wild animals 3. a ke 4. a garden 5. a barn - - - -

90. Besides the writer's home, there were many other homes in the park

1. none 2. one 3. two 4. five 5. many

he people of Athens and Sparta spoke a common
ge, Greek. Athens, rising high from the plain
posed to the fresh breezes from the sea, was
growing city of busy trade, but not so busy but
e freemen loved to sit in the sun and discuss
or listen to the wise words of a philosopher
t a thought of war. Sparta, built at the bottom
ep valley, used the surrounding mountains as
er to foreign thought. It was an armed camp,
the people knew how to fight and liked to fight,
y never wrote a line that was considered litera-
When Athens, attacked by the Persians in
r numbers, asked aid of Sparta, too small an
as dispatched to keep Athens from being sacked
Persians, but when the Persians with their
numbers threatened to overrun all Greece, the
ns led the victorious land attack on the Persians
he Athenian ships destroyed the enemy's fleet.
sculptors, painters, and scientists were sought
l wide to help rebuild the city of Athens and
t more beautiful, but at the same time high
vere built to make it the strongest fortress of
y, stronger by far than Sparta, despite the
at the Persians had been completely broken.

91. The paragraph is mainly about the
1. Persian attack upon Athens 2. rebuilding of Athens 3. the contrast between Athens and Sparta 4. destruction of the Persian attackers 5. union of Sparta and Athens - - - - - - -91

92. Sparta was located
1. inland 2. on a bay 3. on the seacoast 4. on a plain 5. on a trade route - - - - - - 92

93. The Athenians admired
1. display 2. warlike qualities 3. submissiveness 4. brutality 5. beauty - - - - - - 93

94. The Spartans most admired
1. display 2. open-mindedness 3. beauty 4. warlike qualities 5. tolerance - - - - - 94

n in Pennsylvania, Daniel Boone drifted into
Carolina and settled on what was then the
e frontier. The Alleghany mountains marked
dary beyond which the settlers did not go, for
them lay dense forests inhabited only by bands
riors. In 1769, Boone with a few companions
the mountains into the land of groves and
and running waters, where forests grew tall
utiful and where roamed innumerable herds of
nd elk, bands of deer, numerous black bears,
asionally a wolf or cougar. Kentucky was not
vned by any Indian tribe and was visited only
dering war parties or hunting parties from
f the Ohio or south of the Tennessee. The
w years Boone spent in this region as surveyor
der of the settlers amid unending Indian con-
n which two of his sons were killed. After
ky became settled, he grew restless, crossed the
ippi and settled on the border of the prairie
of Missouri, where he remained a backwoods
to a great age.

95 Daniel Boone was a man of
1. simplicity 2. hastiness 3. genius 4. cruelty 5. conviviality - - - - - - - - 95

96. Daniel Boone was chiefly a
1. politician 2. surveyor 3. hunter 4. trader 5. soldier - - - - - - - - - 96

97. Among the wild animals found in smallest numbers in Kentucky were the
1. bison 2. bear 3. deer 4. wolf 5. elk - - 97

any of the things in an American home come
ther lands. The oriental rugs that are used on
ors are woven in Persia and Turkey from the
wool of Asiatic sheep. Some of the chairs we
re made of Mahogany wood from the forests
aragua in Central America. Central African
ts supply the ivory for our piano keys. From
es of South Africa come the diamonds that are
y Americans. The glassware in the home may
en molded by the Czechoslovakians in Europe.
South America we get some of our medicines
Chilean iodine, Brazilian epecac, and Peruvian
— as well as the Panama hats made in
r. But our felt hats contain hair once worn
rabbits of Australia.

98. The paragraph is mainly about
1. where our things come from 2. the American home 3. forests of Nicaragua 4. products of South America 5. products of Africa - - - 98

99. Panama hats come from
1. Australia 2. Asia 3. Africa 4. Panama 5. South America - - - - - - 99

100. Oriental rugs come from
1. Europe 2. Asia 3. Africa 4. Australia 5. South America - - - - - - 100

INTERMEDIATE FORM
(GRADES 3 to 9)

roup Diagnostic Reading Aptitude and Achievement Tests

By MARION MONROE
Specialist in Remedial Instruction, Public Schools, Pittsburgh, Pa.

and EVA EDITH SHERMAN
Director of Testing and Evaluation, Public Schools, Santa Barbara, Calif.

me .... Date .... Grade ....

ool .... Birthdate .... Age ....

---

elligence Tests:

me of test .... Date given .... C. A. .... M. A. .... I. Q. ....

me of test .... Date given .... C. A. .... M. A. .... I. Q. ....

EDUCATIONAL PROFILE

ADE	C. A.	M. A.	ARITH.	SPELL.	READING 1 2 3	AV.
	15	15				
	14	14				
	13	13				
7	12	12				
6	11	11				
5	10	10				
4	9	9				
3	8	8				
2	7	7				
	6	6				

DIAGNOSTIC PROFILES

ord Discrimination

% ile	Vowel	Cons.	Rev.	Add. Om.
90				
80				
70	- - -	- - -	- - -	- - -
60				
50				
40				
30				
20	- - -	- - -	- - -	- - -
10				
0				

Aptitude

	% ile	Vis. 1 2	Aud. 1 2	Mot. 1 2	Lang. 1
SUPERIOR	90				
	80				
	70				
AVERAGE	60				
	50				
	40				
	30				
INFERIOR	20				
	10				
	0				

INTELLIGENCE DATA Years Months

C. A. at date of reading test ....

M. A. (corrected to date of reading test, as follows:)

1. Change present C. A. to months
2. Multiply by last I. Q.
3. Omit last two figures of this product.
4. Divide by 12 to get years. Remainder is months. ....

EDUCATIONAL DATA

Reading tests Grade

1. Paragraph Meaning. ....
2. Speed of Reading. ....
3. Word Discrimination. ....

Average ....

Arithmetic test ....

Spelling test ....

WORD DISCRIMINATION DATA

Percentile for Grade

Types

1. Vowels ....
2. Consonants ....
3. Reversals ....
4. Additions and Omissions ....

APTITUDE DATA

Percentile for Age

Visual

1. Letter Memory ....
2. Form Memory ....

Auditory

1. Letter Memory ....
2. Orientation and Discrimination ....

Motor

1. Copying Text ....
2. Cross-out Letters ....

Language

1. Vocabulary ....

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Use this page for recording additional data, such as the child's school adjustment, problems in beha or, physical, or other defects, home conditions, etc.

Part 1. Achievement Tests

READING TEST 1. PARAGRAPH UNDERSTANDING

ections: Read the question. Then read the paragraph and find the answer to the question. At the end of the paragraph, draw a line under the word which answers the question. When you finish this page, go on to the next.

mple: **What does Tom's dog do?**
Tom has a dog.
The dog runs.
has runs Tom dog

Sample: **Who has a cat?**
Mary has two pets.
They are a cat and a dog.
pets cat dog Mary

Allow 7 minutes

What does Peter have?

Peter is a boy.
He has a ball.

boy ball doll Peter

Who is here with the car?

Mother said, "Come, Jane.
Father is here with the car."

Jane car Mother Father

Who likes the cat?

Baby has a cat.
She does not like the cat.
Brother likes it.

Baby cat likes Brother

What did the boy lose?

A boy was looking for something he lost.
A man said, "I will help you find it."
They found the penny in the grass.

grass nickel penny man

Who was the child?

Molly saw a child.
She said, "What is your name?"
The child said, "My name is Betty."

Molly name Betty child

6. **What doll did the little girl like most?**

A little girl had two dolls.
She got one this year and one last year.
She said, "I like my new doll, but I like the old doll best."

two dolls old doll new doll little girl

7. **What did the farmer feed the cows?**

A farmer had cows, horses, chickens and ducks. He fed the cows and horses hay. To the chickens and ducks he fed corn.

horses corn hay ducks

8. **How old is Bill?**

Mary is ten years old. She has little twin brothers named Tom and Bill, and a brother Jack who is twelve years old. Tom is six.

ten twelve six eight

9. **What did Father want the children to do?**

Father said, "Hurry, children. We shall be late for the train. We are going to see Grandma and Grandpa."

see Grandma to see to hurry to be late

10. **Where does Bob help his father?**

Bob goes to school every day except Saturday and Sunday. On Saturday he helps his father at the store. On Sunday he and his father go to church.

church Saturday store father every day

11. **What kind of kitten did Mrs. Brown find?**

Mrs. Brown found a kitten in the barnyard one winter day. The kitten was so weak it could hardly stand. Mrs. Brown took it into the warm house and put it into a little basket.

weak little warm barnyard house

Go on to next page.

12. **Where did John go last?**

John said, "I did two things today. I went to the bank after I took my book back to the library."

bank library school today John

13. **When is Alice's next music lesson?**

Alice is becoming a fine musician. She practices on the piano every day. On Tuesday and Friday she takes her music lesson. Today is Wednesday.

Monday Tuesday Wednesday Thursday Friday

14. **Of what are toy animals made in Mexico?**

In Mexican markets many things are on display. The tourist can buy brightly colored blankets of wool or cotton; leather shoes or purses; clay pigs, cats, or rabbits; and interesting carved human figures made of wood. Many of the toy animals are painted in bright colors with funny dots and stripes.

colors wood leather clay dots and stripes

15. **When did the children go for a walk?**

On Tuesday it rained, so the children played indoors. Wednesday morning it was still too muddy to play outside, but their father took them for a ride in the park. Yesterday was bright and clear, and they went for a walk in the forest. They met an old woman when they had gone about a mile.

yesterday in the park Tuesday morning in the forest about a mile

16. **Which rug is most expensive?**

The merchant said, "The dye used in this red rug comes from a very tiny animal. Thousands of animals are necessary to make even a small amount of dye. For that reason the rug is worth much more than the blue or green rugs."

animals blue red green tiny merchant

17. **Which game do I prefer?**

Second only to tennis, in my opinion, is the game of golf. Both games require more skill of hand and quickness of movement and eye than card games or checkers.

tennis golf card games checkers games

18. **How did I feel?**

The angry rhinocerous came so close at I could hear the huge beast snort. I re hed for my automatic rifle, although I ell knew that my bullets would have le effect on his tough hide. Terrified, I wa hed him advance toward me.

angry huge well little terrified

19. **Whom did Washington praise?**

During the hardships of the Revolutio ry war, everyone—young and old, sold s, farmers, and artisans—all worked a uously for their country. Washington equently commended especially the pat otism and devotion of the women. T ey worked as tirelessly as the soldiers on he battlefields, but with other implem ts than firearms.

soldiers women farme artisans patriotism

20. **What means of transportation seemed eculiar to Mr. Jones?**

For thirty years Mr. Jones lived i a country where the dog-team was the le means of transportation. Accustome as he was to the sled or travois, he foun it difficult, on his return to civilization to refrain from gaping wide-eyed in wo er at the automobiles of our modern ty streets.

dog-team sled automobiles street travois

21. **What is the most economical type of locomotive?**

Engineers strive to reduce the weigh of engines and thereby lessen the pound ng of the driving wheels against the iron ls at high speeds. Less pounding means l ger wear, both for locomotives and tra s. The new stream-line trains are usu ly made from aluminum and are both lig er and easier to pull than the old type s el locomotives.

steel aluminum iron wood old-type

Go on to next p

Who may submit entries in the contest?

The committee of judges will give careful attention to every entry submitted. The entrants should type the manuscripts on only one side of the paper. Any magazine reader is eligible to compete. The contest is closed to relatives of the judges, or employees of the firm.

committee members **employees**
judges **judges' relatives**
magazine readers

. **Future buyers of airplanes may expect a reduction in what?**

Airplanes are rapidly being improved to increase speed and safety. In fact, each new plane built is out of date soon after delivery to the purchaser. Eventually, when the experimental stage in aviation has been passed, airplanes will be standardized and produced at a considerably lower price than at present.

delivery **speed** **safety** **price**
aviation **airplanes**

. **What do vocational tests measure?**

Tests for vocational guidance are effective tools in helping high school students select suitable occupations. The counsellor explains to the student that the tests cannot dictate his future vocation in absolute terms, but rather point out his aptitudes and abilities. He may then make a more intelligent and successful occupational choice than would be possible otherwise.

occupations **absolute terms**
aptitudes **counsellor** **guidance**

5. **What kind of abstracts appear in "Biological Abstracts"?**

"Biological Abstracts" is a scientific journal consisting of extremely condensed summaries or abstracts of current scientific, biological literature. Biology, however is such an extensive field that the abstracts, if published in one volume, would be expensive and bulky. They are, therefore, divided into five volumes dealing with specialized topics within the general biological field, each of which may be purchased independently.

extensive **widespread** **expensive**
condensed **bulky** **volume**

26. **What should citizens do in reading news items?**

A newspaper becomes an organ of propoganda when subversive influences are allowed to invade the field of reporting events. Citizens should be trained to evaluate each news item in terms of its authenticity, and to expend unmitigated efforts in denouncing newspapers which flagrantly violate veracity in efforts to influence political conduct.

evaluate **denounce** **violate**
invade **influence** **veracity**

27. **What partially overcomes the limits of human perception?**

There are limits of exactness in human perception which are irremedial. As two lines or forms are made more nearly equal, a point is reached at which the unaided eye can no longer distinguish between them. To eliminate this source of error in observation, precision instruments have been devised which permit greater accuracy of measurement than could be obtained otherwise.

observation **instruments** **exactness**
accuracy **irremedial** **forms**

28. **What makes diagnosis of fatigue difficult?**

Depression, inattention, and erratic behavior may result from fatigue. In any consideration of fatigue, the capacity of the human being to compensate temporarily by special effort should be remembered. This capacity not infrequently produces remarkable results and may be correspondingly misleading. Interpretation of fatigue is impossible, even when aggravated, unless this capacity is controlled or eliminated.

compensation **capacity** **results**
fatigue **aggravated** **eliminated**
depression

Stop here.

Score__________
(Number right)

Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Over 26
Grade	1.0	1.3	1.5	1.7	2.0	2.3	2.8	3.2	3.5	3.8	4.2	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.3	8.6	9.0	9.3	9.7	10.0	10.5	11.0	11.0+

READING TEST 2. SPEED

Directions: This is a test to find out how fast you can read. You will find things to do in almost e
sentence. Be sure to do each thing right, but go as fast as you can.

Allow 1½ mi

Put a ring around the flag. Put a 1
line under the tree. Make a cross on 2
this line........Write the number three after 3
this sentence........Read as fast as you can. 4
Write "yes" on this line.............. 5

If you have two eyes, write 2 after this
sentence..........If you can see, put a ring 6
around this S. If you like to eat, make two 7
circles here..............Now cross out the 8
number three. 1 2 3 4 9

Boys and girls like these games because
they are easy. Put a dot in this ring ○ 10
How many feet have you?.......How many 11
ears have you?.......How many feet has a 12
dog?....... 13

This is fun. Cross out all the o's in
follow. Cross out the l's in little. Cross out 15
the last letter in boy. Put a line under the 16
last word in this sentence. Make two 17
crosses on this line.......... 18

You are doing very well. Keep it up.

Draw a line under the girl's name:
Jack, Jane. Draw a ring around the 19
number six. 2 6 3 7 20

Write yes or no after each of these
questions. Can horses bark?..........Are 21
some trees green?..........Is our flag red, 22
white, and blue?..............Do hens lay eggs?.......Does milk come from birds?....... Would you like to have ten dollars?..........

You are a fast reader. How many letters are in the word two?........How many letters are in the word up?........Write a capital B here..........Put a cross in this ring. ○

Draw a line under the name of a color: red, pretty. Cross out a word that means big: small, large. Put a ring around a word that means glad: happy, sorry. If you like to play these games, make a circle here.......

Draw a line under the right answer. When does the sun shine? night, day. Which is larger? boy, man. Which is cold? ice, fire. Which is blue? sky, apple. Who is older? mother, baby.

Only a few pupils can read as far as this. How many things make a pair?........Draw a ring around something good to eat: coal, apple. Put a line under a toy: doll, lake. Put a line under each t in butter.

Write the first letter in the word "cat" here.......... Now write "end" here..........

Score..................
(Number right)

Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Over 30
Grade	1.0	1.4	1.6	2.0	2.3	2.5	2.7	3.0	3.2	3.5	3.7	4.0	4.3	4.6	5.0	5.4	5.8	6.1	6.5	6.9	7.3	7.6	7.8	8.1	8.5	8.9	9.3	9.5	9.8	10.1	10.5	10.5+

READING TEST 3. WORD DISCRIMINATION

---

ections: Underline the correct sentence in each group.

nple: The cat runs after the hat.
The cat runs after the rat.
The hat runs after the rat.

Allow 2 minutes

Part 1. Vowels

A dog can run fast.
A dig can run fast.
A dug can run fast.

. We sleep in a bid.
We sleep in a bed.
We sleep in a bad.

. The mat wore a hat.
The man wore a hot.
The man wore a hat.

. I like to eat bread and butter.
I like to eat broad and butter.
I like to eat bread and bitter.

. We get milk from the coo.
We get milk from the cow.
We get milk from the coy.

. I hop that you will come soon.
I hope that you will come soon.
I hop that you well come soon.

. He will tape on the door.
He will tap on the door.
He will tip on the door.

. I am fund of animals.
I am found of animals.
I am fond of animals.

. Did you knew my brother?
Did you knee my brother?
Did you know my brother?

. Have you heard what happened today?
Have you hard what happened today?
Have you hoard what happened today?

1. He sent his white callers to be washed.
He sent his white collars to be washed.
He sent his white colors to be washed.

2. His father has a leather belt.
His father has a lather belt.
His feather has a leather belt.

3. The boy put a beetle in the bottle.
The boy put a battle in the bottle.
The boy put a bottle in the beetle.

4. Be sure to sleep on clean budding.
Be sure to sleep on clean beading.
Be sure to sleep on clean bedding.

15. The girl is hopping to go to the picnic.
The girl is hoping to go to the picnic.
The girl is hooping to go to the picnic.

16. Let this accident be a reminder to be careful.
Let this occident be a reminder to be careful.
Let this accident be a remainder to be careful.

17. The rubber confessed that he was guilty.
The robber confused that he was guilty.
The robber confessed that he was guilty.

18. Workmen were hired to constrict the bridge.
Workmen were heard to constrict the bridge.
Workmen were hired to construct the bridge.

19. The man said that he would come latter.
The man said that he would come later.
The man said that he would come letter.

20. He was reworded for finding the expensive jewels.
He was rewarded for finding the expensive jewels.
He was rewarded for finding the expansive jewels.

21. All the problems accept the first are impossible.
All the problems accept the first are impassible.
All the problems except the first are impossible.

22. This author mansions the American Revolution.
This author mentions the American Revolution.
This author mentions the American Revelation.

23. Some people object to foreign imports.
Some people abject to foreign imparts.
Some people object to foreign imparts.

24. The possession is filled by an eminent man.
The position is filled by an imminent man.
The position is filled by an eminent man.

Score..........................
(Number right minus number wrong)

GRADE

Per-centile	3	4	5	6	7	8	9
90	11	15	16	17	22	22	23
80	10	14	15	16	19	21	22
70	9	12	14	15	18	20	21
60	7	11	13	14	17	18	19
50	6	10	12	13	16	17	18
40	5	9	11	12	15	15	16
30	4	8	10	11	13	14	15
20	3	7	6	9	12	12	13
10	2	5	5	6	10	11	12

Part 2. Consonants

Allow 2 min

1. A little dog is a good pet.
A little dog is a good pen.
A little dog is a good peg.

2. We sleep in a bet.
We sleep in a bed.
We sleep in a bell.

3. Please look at the pretty doll.
Please took at the pretty doll.
Please book at the pretty doll.

4. This paper cost a time.
This paper cost a dine.
This paper cost a dime.

5. The poor man was very tin.
The poor man was very fin.
The poor man was very thin.

6. Give the toy to then.
Give the toy to there.
Give the toy to them.

7. Get the nail at the post office.
Get the mail at the post office.
Get the rail at the post office.

8. Which is the way to town?
Witch is the way to town?
Wish is the way to town?

9. Wash the dishes in the sing.
Wash the dishes in the sink.
Wash the dishes in the zinc.

10. You will get yet in the water.
You will get wet in the water.
You will get whet in the water.

11. The pupil corrected his mistake.
The pupil connected his mistake.
The pupil collected his mistake.

12. Will you consent to the plan?
Will you convent to the plan?
Will you content to the plan?

13. Vaccination presents smallpox.
Vaccination pretends smallpox.
Vaccination prevents smallpox.

14. My derision to go made her happy.
My division to go made her happy.
My decision to go made her happy.

15. I do not know weather it will rain tomorrow.
I do not know whether it will rain tomorrow.
I do not know wetter it will rain tomorrow.

16. This package of sugar is infested with ants.
This package of sugar is infected with ants.
This passage of sugar is infested with ants.

17. The halls resounded with echoes of chimes.
The halls rebounded with echoes of chimes.
The balls resounded with echoes of chimes.

18. We defend on the army for protection.
We depend on the army for projection.
We depend on the army for protection.

19. The boy deserts a liberal allowance.
The boy deserves a liberal allowance.
The boy deserves a literal allowance.

20. The floor squealed as he replaced his steps.
The floor squeaked as he retraced his steps.
The floor squeaked as he replaced his steps.

21. The award will be a blonde medal.
The award will be a bronze metal.
The award will be a bronze medal.

22. She fiercely relented his angry resort.
She fiercely resented his angry retort.
She fiercely relented his angry retort.

23. The wrestler's huge muzzles showed in the photogra .
The wrestler's huge muscles showed in the photogra .
The wrestler's huge muscles showed in the phonogra .

24. Contracting colors appeased to the girl.
Contrasting colors appealed to the girl.
Contracting colors appealed to the girl.

Score..............................
(Number right minus number wr)

GRADE

Per-cen-tile	3	4	5	6	7	8	9
90	11	13	15	16	18	22	23
80	10	12	13	15	17	20	21
70	9	12	12	14	16	19	20
60	8	11	12	13	15	17	18
50	7	10	11	12	14	16	17
40	6	9	10	11	13	15	16
30	4	8	8	10	12	14	15
20	3	7	7	9	11	12	13
10	1	5	5	6	10	11	12

Part 3. Reversals

Allow 2 minutes

A little bog can run fast.
A little dog can run fast.
A little god can run fast.

The man was the cat.
The man saw the cat.
The man sam the cat.

A big likes mud.
A dig likes mud.
A pig likes mud.

Please do not come late to school.
Please do ton come late to school.
Please do out come late go school.

Write your name on the crab.
Write your name on the carp.
Write your name on the card.

A dog can bark.
A dog can park.
A dog can dark.

The boy used an ax to spilt wood.
The boy used an ax to split wood.
The boy used an ax to slipped wood.

Do not bump the garbage on the street.
Do not dump the garbage on the street.
Do not dumb the garbage on the street.

I like to eat beard and butter.
I like to eat dread and butter.
I like to eat bread and butter.

The red light means spot.
The red light means stop.
The red light means pots.

The small boy won the race.
The small boy own the race.
The small boy now the race.

The child was blowing soap puddles.
The child was blowing soap bubbles.
The child was blowing soap bulbs.

Buy goods of the best quality.
Buy goods of the best qualify.
Buy goods of the best duality.

Can you stake on ice?
Can you skate on ice?
Can you takes on ice?

15. The bride looked like an angel.
The bribe looked like an angel.
The bride looked like an angle

16. Healthy pink cheeks need no rogue.
Healthy pink cheeks need on rouge.
Healthy pink cheeks need no rouge.

17. He tried to preform the difficult task.
He tired to perform the difficult task.
He tried to perform the difficult task.

18. Farmers must guard against frost.
Farmers must grand against frost.
Framers must guard against frost.

19. The child who perseveres can except to succeed.
The child who preserves can expect to succeed.
The child who perseveres can expect to succeed.

20. Are you intending to move this month?
Are you indenting to move this mouth?
Are you intending to move this mouth?

21. He was greatly assumed, reading the funny verse.
He was greatly amused, reading the funny serve.
He was greatly amused, reading the funny verse.

22. The calvary paraded to martial music.
The cavalry paraded to marital music.
The cavalry paraded to martial music.

23. The best reader was commended for his skill.
The best reared was condemned for his skill.
The best reader was condemned for his skill.

24. We conserved about antique silver.
We conversed about antique silver.
We conversed about antique sliver.

Score________________
(Number right minus number wrong)

GRADE

Percentile	3	4	5	6	7	8	9
90	11	14	15	15	18	18	19
80	9	13	14	14	16	16	17
70	8	12	13	13	15	15	16
60	7	11	12	13	14	15	16
50	6	10	11	12	13	14	15
40	4	9	10	11	12	13	14
30	3	8	9	10	11	13	14
20	2	6	7	9	10	12	13
10	0	4	5	8	9	10	11

Part 4. Additions and Omissions

Allow 2 mi

1. The little girl has a black at.
The little girl has a black cat.
The little girl has a black cats.

2. I play a drum in the bad.
I play a drum in the ban.
I play a drum in the band.

3. He rode his pony pass my house.
He rode his pony past my house.
He rode his pony pat my house.

4. This hat cost the most.
This hat cost the mostly.
This hat cost the almost.

5. We eat dinner ever day.
We eat dinner very day.
We eat dinner every day.

6. I gave the book to a fried.
I gave the book to a friend.
I gave the book to a fiend.

7. The boy's farther is a doctor.
The boy's fathers is a doctor.
The boy's father is a doctor.

8. The baby wants to sleep.
The baby wants to sleepy.
The baby wants to asleep.

9. Tie the bundle with a sing.
Tie the bundle with a string.
Tie the bundle with a sting.

10. I have been presents every day.
I have been presently every day.
I have been present every day.

11. We tramped through the forest.
We tramped thorough the forest.
We tramped though the forest.

12. Here is a small particular of sand.
Here is a small participle of sand.
Here is a small particle of sand.

13. This is the largest county in the state.
This is the largest country in the state.
This is the largest count in the state.

14. Two needless are used in knitting.
Two needlessly are used in knitting.
Two needles are used in knitting.

15. The widow kept her car in our garbage.
The widow kept her car in our garage.
The window kept her car in our garage.

16. The artist created a statute from clay.
The artist created a statue from clay.
The artist crated a statute from clay.

17. It is imprudent to spend money lavishly.
It is impudent to spend money lavishly.
It is imprudent to spend monkey lavishly.

18. The invisible team won a gold medal.
The invincible team won a gold medial.
The invincible team won a gold medal.

19. He gave more liberality than others in his loc y.
He gave more liberally than others in his loc y.
He gave more liberally than others in his loca y.

20. The bandit intimidated the crowd with a revo r.
The bandit intimated the crowd with a revo r.
The bandit intimidated the crowd with a rev e.

21. A procession flowed the parade.
A procession followed the parade.
A possession followed the parade.

22. This printed publican is nationally known.
This printed publication is nationality know
This printed publication is nationally know

23. He studied, obvious to the conversation.
He studied, oblivious to the conversation.
He studied, oblivious to the conversion.

24. Your direction is really too indefinite to follo
Your direction is reality too indefinite to foll .
Your direction is really too infinite to follow

Score................................
(Number right minus number ng)

GRADE

Per-cen-tile	3	4	5	6	7	8	9
90	9	12	13	14	16	17	18
80	7	11	12	12	15	16	17
70	6	10	11	11	14	15	16
60	5	9	10	10	13	14	15
50	4	8	9	9	12	13	14
40	3	7	8	8	12	12	13
30	2	6	6	7	10	11	12
20	1	5	5	6	9	9	10
10	0	3	3	5	6	8	9

Score Vowels ....

Score Consonants ....

Score Reversals ....

Score Add. and Om..

Total Score ....

Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
Grade	1.0	1.0	1.1	1.3	1.5	1.6	1.7	1.8	1.9	2.0	2.2	2.4	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3

Score	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
Grade	3.4	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	5.1	5.2	5.3

Score	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59
Grade	5.4	5.5	5.6	5.7	5.8	6.0	6.1	6.2	6.3	6.5	6.6	6.7	6.9	7.0	7.1	7.2	7.3	7.4	7.5

Score	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	Ov
Grade	7.6	7.7	7.9	8.0	8.2	8.4	8.6	8.8	8.9	9.0	9.1	9.3	9.5	9.6	9.7	9.9	10.0	10.3	10.5	10

ARITHMETIC COMPUTATION

ctions: Write the answers to these problems as quickly as you can. Allow 5 minutes

1\.
(Add)
2
3

2\.
(Add)
4
3
6

3\.
(Subtract)
6
— 3

4\.
(Subtract)
14
— 8

5\.
(Add)
234
461
925

6\.
Subtract)
322
— 154

7\.
(Multiply)
8
× 3

8\.
(Multiply)
204
× 7

9\.
(Divide)
3) 12

10\.
(Divide)
4) 492

11\.
(Divide)
7) 65

12\.
(Multiply)
23
× 9

13\.
(Subtract)
4203
— 3705

14\.
(Multiply)
37
× 86

15\.
(Divide)
26) 1326

16\.
(Add)
10
$2\frac{1}{2}$

17\.
(Add)
$\frac{1}{6}$
$\frac{1}{2}$

18\.
(Subtract)
$3\frac{1}{4}$
— 2

19\.
(Subtract)
7
— $5\frac{1}{3}$

20\.
(Add)
$\frac{1}{3}$
$\frac{1}{4}$
$\frac{5}{6}$

21\.
(Add)
$192\frac{5}{6}$
$21\frac{1}{3}$

22\.
(Multiply)
27
× $2\frac{1}{3}$

23\.
(Multiply)
$\frac{2}{3} \times \frac{3}{4} =$

24\.
(Divide)
$\frac{3}{4} \div \frac{1}{2} =$

25\.
(Multiply)
39
.04

26\.
(Add)
.26
.2
4.936

27\.
(Divide)
8) 2.48

28\.
(Divide)
.002) 90.12

29\.
(Multiply)
32.1
× 1.97

30\.
Write $\frac{3}{4}$ as a decimal fraction.

Score.................
(Number right)

Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Over 24
Grade	1.0	1.6	2.2	2.7	3.0	3.5	3.8	4.1	4.3	4.5	4.7	5.0	5.3	5.5	5.8	6.3	6.6	7.3	7.6	8.3	8.7	9.2	9.7	10.3	10.5	10.5+

SPELLING TEST

Directions: Write the words which the teacher pronounces. One word belongs in each space.

---

1. A..........................drinks milk.
2. The..........................runs.
3. He..........................a letter.
4. The grass is...........................
5. Please..........................some candy.
6. This is a toy...........................
7. You should..........................your lesson.
8. The horse is...........................
9. We..........................very quietly.
10. I live in a very large...........................
11. You can..........................out a candle.
12. Do not..........................around.
13. The train is on the...........................
14. Are you..........................to go?
15. We cook in the...........................
16. Open the..........................wide.
17. Throw the ball.......................... the posts.
18. This is.......................... eighteen.
19. Why do you..........................?
20. She has a..........................new dress.
21. What is the ....?
22. Fold the..........................piece of paper.
23. The..........................pulls the train.
24. I enjoyed my..........................to the country.
25. Many..........................are re.
26. We went to a.......................... meeting.
27. The horse pulls the..........................
28. The ....is the an who commands the army.
29. I..........................I saw u
30. What..........................is your ir.
31. What did you eat for..........................?
32. My.......................... a good typist.
33. He has very little...........................
34. The .... collects taxes and makes laws.
35. On my.......................... an answer letters.
36. Be .... in choosing friends.
37. This .... is easy.
38. How many yards of cloth are .... to n ke this coat?
39. We talked over the..........................
40. The ....pl ed on the violin.

Score..........................
(Number right)

Score	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	ver 4
Grade	1.0	1.3	1.5	1.7	2.0	2.3	2.5	2.7	3.0	3.2	3.5	3.7	3.8	4.0	4.1	4.2	4.3	4.5	4.6	4.7	4.8	5.0	5.1	5.3	5.4	5.6	5.7	5.9	6.0	6.2	6.4	6.6	6.7	6.9	7.0	7.3	7.5	7.9	8.3	8.9	9.	.5+

Part 2. Aptitude Tests

VISUAL TESTS

Letter Memory

ctions: The teacher will show you a card hich is printed a nonsense word. Study the d until the teacher removes the card. Then **e as much of the nonsense words as you ember.**

Show each card 5 seconds.

Score..............................

(Number of nonsense words correct)

AGE

Per-cen-tile	8	9	10	11	12	13	14	15+
90	12	14	15	16	17	17	17	18
80	11	13	14	15	16	16	16	17
70	11	12	13	15	15	16	16	17
60	10	11	13	14	14	15	15	16
50	9	11	12	13	13	14	14	15
40	9	10	11	13	13	13	13	14
30	8	9	10	12	12	13	13	14
20	8	8	9	11	12	12	12	13
10	7	7	7	8	9	10	10	11

Form Memory

Directions: The teacher will show you some designs on a card. Study these designs until the teacher removes the card. Then draw as many of them as you can remember.

Show each card 10 seconds.

Card 1.

Card 2.

Card 3.

Card 4.

Score..............................

(Number of single designs correct)

AGE

Per-cen-tile	8	9	10	11	12	13	14	15+
90	10	10	11	11	12	12	12	13
80	9	9	10	10	11	11	11	12
70	8	8	8	9	9	11	11	12
60	7	7	8	8	8	10	10	11
50	6	6	7	7	7	9	9	10
40	5	5	6	7	7	8	8	9
30	4	5	5	6	6	7	7	8
20	3	4	4	5	5	6	6	7
10	2	3	3	4	4	5	5	6

AUDITORY TESTS

Letter Memory

Directions: The teacher will spell aloud the letters of some nonsense words. Listen carefully and when she says "write", write as many of the letters as you can remember.

1. ....
2. ....
3. ....
4. ....
5. ....
6. ....
7. ....
8. ....
9. ....
10. ....
11. ....
12. ....
13. ....
14. ....
15. ....
16. ....

Score..............................
(Number of nonsense words correct)

AGE

Per-cen-tile	8	9	10	11	12	13	14	15+
90	10	11	11	11	13	14	14	15
80	9	10	10	11	11	12	12	13
70	9	9	9	10	10	11	11	12
60	8	9	9	10	10	11	11	12
50	8	8	9	9	10	10	10	11
40	8	8	8	9	9	10	10	11
30	7	8	8	8	9	9	9	10
20	7	7	7	7	8	8	8	9
10	6	6	6	6	7	7	7	8

Discrimination and Orientation

Directions: This is a test to see how well can listen. Wait until the teacher tells what to do.

Sample:	boot	bat	beat	bit
Sample:	X	X	X	X
1.	X	X	X	X
2.	X	X	X	X
3.	X	X	X	X
4.	X	X	X	X
5.	X	X	X	X
6.	X	X	X	X
7.	X	X	X	X
8.	X	X	X	X
9.	X	X	X	X
10.	X	X	X	X
11.	X	X	X	X
12.	X	X	X	X
13.	X	X	X	X
14.	X	X	X	X
15.	X	X	X	X
16.	X	X	X	X
17.	X	X	X	X
18.	X	X	X	X
19.	X	X	X	X
20.	X	X	X	X
21.	X	X	X	X
22.	X	X	X	X
23.	X	X	X	X
24.	X	X	X	X
25.	X	X	X	X

Score..............................
(Number right)

AGE

Per-cen-tile	8	9	10	11	12	13	14	15+
90	22	23	23	24	24	24	24	25
80	21	22	22	23	23	23	23	24
70	20	21	21	22	22	23	23	24
60	19	20	20	21	21	22	22	23
50	18	19	19	21	21	21	21	22
40	17	18	18	20	20	21	21	22
30	15	17	17	19	20	20	20	21
20	13	16	16	18	19	20	20	21
10	7	13	14	17	17	18	18	19

Copying Text

tions: Copy this little story as quickly plainly as you can. When the teacher says ", hold up your pencil.

Allow 1½ minutes

little boy lived with his father in a large t. Every day the father went out to cut . One day the boy was walking through oods with a basket of lunch for his father. enly he met a huge bear. The boy was tened, but he threw a piece of bread and to the bear.

Score..............................

(Number of words written correctly)

AGE

Per-cen-tile	8	9	10	11	12	13	14	15+
90	26	27	32	37	43	46	46	48
80	24	25	29	35	38	42	44	46
70	22	24	27	33	37	40	43	44
60	20	23	26	31	36	38	42	43
50	18	20	25	29	33	36	39	40
40	14	19	24	28	31	34	37	38
30	12	17	23	26	29	32	36	37
20	11	15	21	24	27	28	34	35
10	10	12	16	21	24	26	28	30

Crossing Out Letters

Directions: In every other word there is a letter "a". Cross out all of the a's you can find. Remember there is one in every other word. Do it this way: she~~a~~k puk v~~a~~rone le ~~a~~net.

Allow 1 minute

Bot ralentch tokel stad voulte san cherm 3
anoos. Evidid wheal oron vade su av 7
olein sair newok eaey ki poleat selur 10
laes ov prusath. Toshel wanetor tuk 13
splenat olor wark lishes eator, thesur 16
squal se haed sunch, iga niding. Ballon 20
luzzevs thail jiekes, asselum mey jaublet. 23
Mo shoam kleidorp pae synoghet lanke. 26
Prounth ab shill veroaki spleevo ta thrun 29
ake squiton achorles ev sloak dunket, 32
apporenice woll. Lackech woesp traskel 35
wois appin ovilt anevish. Drist flunoat, 38
hispel adenoll, dite risha thi havod hevod 41
thenna. Thop calch eline yeating zellos 44
athern pitoe tad wroke prall ven acholet 48
xeb. Cholat wheb whay, slooter anenine 51
glotes oda morest aberove, lin thoak drist 54
penota, ideok, wark lishes nald neth 57
wonat spliger athern wosk denna. 60

Score..............................

(Number of a's crossed out)

AGE

Per-cen-tile	8	9	10	11	12	13	14	15+
90	32	33	34	42	47	51	51	52
80	29	31	33	38	42	48	48	49
70	27	29	31	35	39	45	45	46
60	25	27	29	33	38	43	43	44
50	24	26	27	32	35	40	40	41
40	23	25	26	29	34	38	38	39
30	22	24	24	28	32	36	36	37
20	21	22	23	26	28	34	34	35
10	19	20	21	23	26	30	30	31

LANGUAGE TEST

Vocabulary

Directions: Here are groups of words, some pairs of which make good sense, while others are fo
Listen while the teacher reads each group aloud. Decide which pair of words in the
makes the best sense and draw a line under that pair.

Sample:
bed sleeps
baby sleeps
grass sleeps
broom sleeps

Sample:
pretty rose
ugly rose
high rose
ring rose

1.
ball plays
ball rolls
ball eats
ball bats

2.
sour sugar
salty sugar
bitter sugar
sweet sugar

3.
cold fire
cold steam
cold ice
cold sneeze

4.
pen writes
pen cooks
pen fastens
pen hammers

5.
snow scorches
water scorches
steam scorches
fire scorches

6.
saddle canoe
saddle pony
saddle lady
saddle stable

7.
wear gown
hear gown
pour gown
tumble gown

8.
wood melts
milk melts
ice melts
water melts

9.
coin ropes
coin money
coin monkey
coin cobs

10.
dove flies
dove swims
dove barks
dove crows

11.
aged child
aged youth
aged baby
aged man

12.
scissors snip
brushes snip
saucers snip
steams snip

13.
wet desert
dry desert
fruitful desert
eat desert

14.
horse grazes
grass grazes
house grazes
star grazes

15.
fragrant nose
fragrant onion
fragrant rose
fragrant garbage

16.
bell shouts
bell bounces
bell tolls
bell bellows

17.
mourners rejoice
mourners frolic
mourners sun
mourners weep

18.
peaceful war
peaceful sleep
peaceful pie
peaceful hub-bub

19.
generous miser
early miser
liberal miser
stingy miser

20.
humorous comedy
humorous tragedy
humorous union
humorous massacre

21.
delightful dungeon
dismal dungeon
gorgeous dungeon
angry dungeon

22.
courteous curtain
courteous glutton
courteous gentleman
courteous bully

23.
industrious laggard
loitering laggard
prompt laggard
lively laggard

24.
hopeful pessimist
misty pessimist
optimistic pessimist
hopeless pessimist

25.
carnivorous cow
carnivorous wolf
carnivorous rabbit
carnivorous carnival

26.
venerable sage
venerable mention
venerable youngster
venerable novelty

27.
menial master
menial professor
menial servant
menial bully

28.
subterranean mountain
subterranean substitute
subterranean submarine
subterranean cavern

Score..........................
(Number right)

AGE

Per-centile	8	9	10	11	12	13	14	15+
90	20	21	23	25	25	26	26	27
80	18	19	22	24	24	25	25	26
70	17	18	20	23	23	24	24	25
60	16	17	18	22	22	23	23	24
50	16	16	17	21	21	22	22	23
40	15	16	16	20	20	22	22	23
30	14	15	16	19	19	21	21	22
20	13	14	15	17	17	20	20	21
10	13	13	13	16	16	17	17	18

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Cooperative English Test

Single Booklet Edition
Lower Level

Form Z

Test Number 331–35–1

Containing

Test C1: Reading Comprehension
Test A: Mechanics of Expression
Test B1: Effectiveness of Expression

BY

JANET AFFLERBACH
MIRIAM M. BRYAN
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CATHERINE DODD
PAULA THIBAULT

COOPERATIVE TEST DIVISION
EDUCATIONAL TESTING SERVICE

Princeton, N. J. Los Angeles, Calif.

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Directions:

Do not turn this page until the examiner tells you to do so. This examination consists of three 40-minute tests. Indicate your answers to all questions on the separate answer sheets. *No credit will be given for any answers written in the test book.* When you have decided which of the suggested answers you want to give for a question, blacken the space between the dotted lines under the matching number or letter on the answer sheet. Use your special pencil to make a *heavy glossy* black line which completely fills the space between the dotted lines. Be careful not to make stray marks on your answer sheet. If you wish to change an answer, erase your first line completely and mark your new choice. Give only one answer to each question; no credit will be given for multiple answers.

When the examiner tells you to begin, turn the page, read the directions carefully, and proceed at once to answer the questions. *Do not spend too much time on any one item. Answer the easier questions first;* then return to the harder ones if you have time. You may answer questions even when you are not perfectly sure that your answers are correct, but you should avoid *wild* guessing since wrong answers will result in a subtraction from the number of your correct answers.

Ask all your questions before the test begins. No questions may be asked after the test has started.

Time Limits

	MINUTES
Reading Comprehension	
Part I: Vocabulary	15
Part II: Reading	25
Total	40
Mechanics of Expression	
Part I: Grammatical Usage	15
Part II: Punctuation and Capitalization	15
Part III: Spelling	10
Total	40
Effectiveness of Expression	
Part I: Sentence Structure and Style	15
Part II: Diction	10
Part III: Organization	15
Total	40

COOPERATIVE
ENGLISH TEST

Test C1: Reading Comprehension

Lower Level

Form Z

Test Number 336–35–1

BY

CHARLOTTE CROON DAVIS
FREDERICK B. DAVIS

COOPERATIVE TEST DIVISION
EDUCATIONAL TESTING SERVICE

Princeton, N. J. Los Angeles, Calif.

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Directions

Do not turn this page until the examiner tells you to do so. This is a 40-minute test with two parts. Indicate your answers to all questions on the separate answer sheet. *No credit will be given for anything written in the test book.* When you have decided which of the suggested answers you want to give for a question, blacken the space between the dotted lines under the matching number on the answer sheet. Use your special pencils to make a heavy, *glossy black* line which completely fills the space between the dotted lines. Be careful not to make stray marks on your answer sheet. If you wish to change an answer, erase your first line completely and mark your new choice. Give only one answer to each question; no credit will be given for multiple answers.

When the examiner tells you to begin, turn the page, read the directions carefully, and proceed at once to answer the questions. Do not spend too much time on any one question. Answer the easier questions first; then return to the harder ones if you have time. You may answer questions even when you are not perfectly sure that your answers are correct, but you should avoid *wild* guessing, since wrong answers will result in a subtraction from the number of your correct answers.

Ask all your questions before the test begins. No questions may be asked after the test has started.

Time Limits

	MINUTES
Part I: Vocabulary	15
Part II: Reading	25
Total	40

READING COMPREHENSION TEST C1

PART I

VOCABULARY

Time—15 minutes

tions: In each group below, select the numbered word or phrase that **most nearly** corresponds in meaning to the at the head of that group and blacken the space opposite the appropriate question number on the answer sheet the number of your choice. It is quite likely that you will finish this part before the time is up. In that case **immediately to Part II** because additional time spent on Part II will probably improve your Speed of Compreon score.

courteous
1–1 royal
1–2 proud
1–3 lovesick
1–4 humble
1–5 polite

mumble
2–1 speak indistinctly
2–2 complain
2–3 handle awkwardly
2–4 fall over something
2–5 tear apart

holster
3–1 strap for a saddle
3–2 bridle
3–3 stableman
3–4 case for a pistol
3–5 peddler

artery
4–1 art museum
4–2 spring
4–3 throat
4–4 blood vessel
4–5 web

bayonet
5–1 small tent
5–2 basket
5–3 helmet
5–4 sharp weapon
5–5 short gun

expel
6–1 force out
6–2 order
6–3 blot out
6–4 lose
6–5 leave

glossy
7–1 transparent
7–2 cold and unfriendly
7–3 bold
7–4 well-dressed
7–5 smooth and shining

8. astound
8–1 scold severely
8–2 make angry
8–3 surprise greatly
8–4 drive out
8–5 ascertain

9. plea
9–1 gift
9–2 appeal
9–3 situation
9–4 meadow
9–5 charge

10. yelp
10–1 harsh laugh
10–2 swallow
10–3 harness
10–4 puppy
10–5 shrill bark

11. recuperation
11–1 relapse
11–2 recollection
11–3 summary
11–4 breathing
11–5 recovery

12. lather
12–1 strap
12–2 foam
12–3 pantry
12–4 oil
12–5 tool

13. polo
kind of
13–1 disease
13–2 game
13–3 tree
13–4 weapon
13–5 beverage

14. surf
14–1 fountain
14–2 breaking waves
14–3 celestial being
14–4 grass
14–5 peasant

15. unanimous
15–1 nameless
15–2 without exception
15–3 uninterested
15–4 rather unfriendly
15–5 gentle

16. browse
16–1 graze
16–2 doze
16–3 cultivate
16–4 cook
16–5 alarm

17. nimble
17–1 quick and light
17–2 stiff and cold
17–3 sluggish
17–4 sentimental
17–5 nervous

18. litter
18–1 musical composition
18–2 scattered rubbish
18–3 public show
18–4 decoration
18–5 coloring matter

19. stagnant
19–1 active
19–2 swaying
19–3 motionless
19–4 notable
19–5 impatient

20. moreover
20–1 however
20–2 nevertheless
20–3 though
20–4 furthermore
20–5 therefore

21. sloop
kind of
21–1 ivy
21–2 fish
21–3 bird
21–4 porridge
21–5 boat

Go on to the next page.

22. soar
22–1 break
22–2 fly
22–3 look
22–4 shift
22–5 feel

23. pry
23–1 enter
23–2 tell
23–3 snoop
23–4 yield
23–5 desire

24. pleat
24–1 lure
24–2 surround
24–3 finish
24–4 fold
24–5 cry

25. unflinching
25–1 steadfast
25–2 boastful
25–3 blind
25–4 colorfast
25–5 merciless

26. hilarity
26–1 angry shouting
26–2 rapidity
26–3 excitement
26–4 boisterous mirth
26–5 friendliness

27. massive
27–1 strong and muscular
27–2 thickly populated
27–3 ugly and awkward
27–4 huge and solid
27–5 everlasting

28. drudgery
28–1 group of shrubs
28–2 large pantry
28–3 worry
28–4 hatred
28–5 toil

29. sham
29–1 false
29–2 foreign
29–3 serious
29–4 reckless
29–5 sympathetic

30. exterminate
30–1 extend farther
30–2 excuse
30–3 clean
30–4 destroy completely
30–5 fight against

31. din
31–1 rumor
31–2 herald
31–3 noise
31–4 grain
31–5 darkness

32. amplify
32–1 electrify
32–2 expand
32–3 cut off
32–4 signify
32–5 supply

33. benevolent
33–1 serviceable
33–2 charitable
33–3 respectable
33–4 remedial
33–5 free

34. wheedle
34–1 turn around
34–2 breathe hoarsely
34–3 coax
34–4 squeeze
34–5 wriggle

35. unwary
35–1 unusual
35–2 deserted
35–3 incautious
35–4 sudden
35–5 tireless

36. parry
36–1 shun
36–2 vanquish
36–3 ward off
36–4 gamble
36–5 discuss

37. pilfer
37–1 search
37–2 punch
37–3 trap
37–4 steal
37–5 differ

38. acclaim
38–1 protest
38–2 run after
38–3 applaud
38–4 acquire
38–5 demand

39. chink
39–1 insect
39–2 machine
39–3 crack
39–4 lining
39–5 bell

40. crony
40–1 servant
40–2 ugly woman
40–3 informer
40–4 intimate compani
40–5 dirty old man

41. burnish
41–1 polish
41–2 wave
41–3 dye
41–4 heat
41–5 consume

42. heather
kind of
42–1 rope
42–2 paper
42–3 plant
42–4 carriage
42–5 pottery

43. deplore
43–1 send away
43–2 regret deeply
43–3 mention
43–4 tempt
43–5 investigate

44. turnkey
44–1 thief
44–2 doorman
44–3 jailer
44–4 locksmith
44–5 magician

45. replete
45–1 full
45–2 elderly
45–3 resentful
45–4 discredited
45–5 restful

Go on to the ne pag

plice
6–1 sharp tool
6–2 splinter
6–3 separation
6–4 connection
6–5 herb

crimony
7–1 promptness
7–2 boredom
7–3 divorce
7–4 stupidity
7–5 bitterness

version
8–1 false accusation
8–2 strong dislike
8–3 declaration
8–4 detour
8–5 translation

xpunge
9–1 rub out
9–2 establish
9–3 soak up
9–4 discolor
9–5 torture

eruse
0–1 employ
0–2 read carefully
0–3 wear out
0–4 overtake
0–5 write slowly

51. duplicity
51–1 extent
51–2 double-dealing
51–3 agreement
51–4 cleverness
51–5 overlapping

52. whim
52–1 hoax
52–2 pretext
52–3 intuition
52–4 freakish notion
52–5 amusement

53. abjure
53–1 make certain
53–2 arrest
53–3 renounce
53–4 abuse
53–5 lose

54. limpid
54–1 lazy
54–2 crippled
54–3 clear
54–4 hot
54–5 slippery

55. allegation
55–1 unsupported assertion
55–2 wise saying
55–3 weaving motion
55–4 agreement between nations
55–5 increase in speed

56. irrefragable
56–1 unbearable
56–2 undeniable
56–3 impudent
56–4 safe
56–5 radical

57. ephemeral
57–1 girlish
57–2 dense
57–3 introductory
57–4 impractical
57–5 short-lived

58. prolific
58–1 freely reproductive
58–2 prehistoric
58–3 talented
58–4 highly temperamental
58–5 frivolous

59. enervating
59–1 encouraging
59–2 strengthening
59–3 weakening
59–4 monotonous
59–5 startling

60. bagatelle
60–1 purse
60–2 trifle
60–3 liar
60–4 pamphlet
60–5 cap

Go on to the next part.

PART II

READING

Time—25 minutes

Directions: This part consists of selections taken from stories, articles, textbooks, etc. Following each pass several multiple-choice questions concerning it. In each case you are to **read the passage carefully first** ar decide, on the basis of the passage, which one of the choices following each question **best** answers that questi you cannot decide, you may go back to the passage. Then blacken the space on the answer sheet under the of your choice. You are not expected to finish in the time allowed, but work as rapidly as you can without careless mistakes.

(1) The day of the Pony Derby was cloudless and
(2) still, a perfect day. The grandstand filled early
(3) and hundreds lined the railing. Back in the horse
(4) tent all was confusion. Kiddies dashed about,
(5) feeding hay to aged beasts while the leather-faced
(6) men who timed their charges with stop watches
(7) shouted frightful oaths, and assorted mothers,
(8) tracking down offspring, complained about their
(9) language.
(10) The Shetland division finally moved into place,
(11) eleven shaggy beasts, with their riders aged five to
(12) eight, ready to start. At the last moment, just as
(13) I raised my whistle, Mrs. Krug emerged screaming
(14) from the grandstand. "Maybelle!" the frantic
(15) mother howled, "She'll fall off." And so Mrs.
(16) Krug lined up beside Bozo.
(17) The crowd shouted encouragement as Bozo,
(18) Maybelle, and Mrs. Krug began to edge up on
(19) Sunny, the favorite. Sunny was a sturdy type,
(20) built low to the ground, but with a wicked single-
(21) foot. The field lagged far behind, Bozo and Sunny
(22) being the only entries who could be urged out of a
(23) walk. Just before the finish line someone threw
(24) out a piece of sugar. Sunny gave a neigh, broke
(25) into a real gallop, and finished ten lengths ahead.
(26) Mrs. Krug and Maybelle both cried, but Bozo took
(27) his defeat like a man.
(28) "The race was fixed!" Mr. Krug and Junior
(29) yelled as they dodged under the railing to join
(30) their bereaved family.
(31) The judges took a vote as to whether to dis-
(32) qualify Sunny, but in the end blandly awarded
(33) two $50 first prizes. The business manager tried
(34) to pass them up a note, but too late.

1. The weather on the day of the Derby was
1–1 windy.
1–2 cold.
1–3 wet.
1–4 fair.
1–5 extremely hot.

2. The "charges" (line 6) were
2–1 jockeys.
2–2 children.
2–3 horses.
2–4 accusations.
2–5 fees.

3. "Their" in line 8 refers to
3–1 kiddies (line 4).
3–2 men (line 6).
3–3 charges (line 6).
3–4 mothers (line 7).
3–5 offspring (line 8).

4. The complaint of the mothers (line 7) was that the language
4–1 was ungrammatical.
4–2 was too loud.
4–3 could not be understood.
4–4 was too technical.
4–5 was profane.

5. The writer was about to blow his whistle (line 13) to
5–1 start the race.
5–2 call the police.
5–3 get the ponies in line.
5–4 quiet the crowd.
5–5 get the attention of the children.

6. Bozo was
6–1 a Shetland pony.
6–2 the favorite.
6–3 a man.
6–4 Maybelle's brother.
6–5 a race horse.

7. Mrs. Krug lined up beside Bozo to
7–1 urge him on.
7–2 protect him.
7–3 get some exercise.
7–4 keep him on the track.
7–5 keep Maybelle from falling off.

8. Sunny had
8–1 a slender body.
8–2 short legs.
8–3 long legs.
8–4 only one foot.
8–5 short fur.

9. "The field" (line 21) means the
9–1 track.
9–2 area inside the track.
9–3 area outside the track.
9–4 rest of the ponies.
9–5 spectators.

10. Bozo's defeat was taken calmly by
10–1 Maybelle.
10–2 Mrs. Krug.
10–3 Mr. Krug.
10–4 Junior.
10–5 Bozo himself.

Go on to the ne

n what way was this race different from most horse races?
1–1 The slowest pony was to be the winner.
1–2 The ponies had no riders.
1–3 All the entries came close to winning.
1–4 A foot runner accompanied one of the entries.
1–5 All the ponies went around in a walk.

Mr. Krug and Junior thought that the race ad been fixed because
2–1 someone accompanied Bozo.
2–2 someone threw sugar onto the track.
2–3 Sunny used the gallop instead of the single-foot.
2–4 the crowd was making so much noise.
2–5 many of the entries refused to go faster than at a walk.

13. The business manager's note probably said that
13–1 there was not enough money for two $50 prizes.
13–2 prizes should be given to all eleven entries.
13–3 Sunny should get $100 and Bozo $50.
13–4 Bozo should get $100 and Sunny $50.
13–5 the race should be canceled.

14. The crowd probably found the race
14–1 uninteresting.
14–2 disagreeable.
14–3 amusing.
14–4 nerve-racking.
14–5 unfair.

– – – – – – – – – –

eyes that shine in the dark do so by means of a
tor behind the retina. The little light that is
g in the outer world enters the pupil, passes through
ansparent retina, which utilizes this light for vision,
n to the reflector, which sends it back to the object
which it came. Here it is joined to fresh original
from the object, and the process is repeated. Thus
arnivora and some other animals whose vision is
much poorer than ours by day see much better at
And that is why primitive man lived in terror of
rk. He was eater by day, eaten by night.

The passage implies that eyes that shine in the dark are found in
15–1 the Carnivora only.
15–2 various animals among which are the Carnivora.
15–3 various animals but never the Carnivora.
15–4 most animals that are hunted by other animals.
15–5 all animals except man.

Eyes that shine in the dark do so because they
16–1 act like mirrors.
16–2 act like cameras.
16–3 absorb light.
16–4 generate light.
16–5 have transparent reflectors.

17. The principal effect of the reflector in an animal's eyes is to
17–1 confuse his prey by making his eyes shine in the dark.
17–2 transmit light to the retina.
17–3 provide a source of light.
17–4 enable him to be seen in the dark.
17–5 enable him to see better in the dark.

18. The passage states that the eyes of some animals are inferior to those of man with respect to
18–1 distance vision.
18–2 near vision.
18–3 night vision.
18–4 daytime vision.
18–5 all forms of vision.

19. Primitive man lived in terror of the dark because
19–1 he was superstitious.
19–2 he could not hunt well at night.
19–3 he saw less well at night than does modern man.
19–4 he could see dangers more clearly at night than in the daytime.
19–5 wild animals could see better at night than he could.

– – – – – – – – – –

Go on to the next page.

In Tunis Captain Cobham met a damsel called Maria, whom he married and took on board with him. This caused some murmuring among the crew since they were not allowed to have lady companions on their voyages. However, Maria won the affection of all on board by interceding with the captain for any seaman who was to be punished. Cobham sailed across the Atlantic and lay in wait for vessels between Cape Breton and Prince Edward Isle and took several prizes. He placed all the crew of one of these in sacks and threw them into the sea. Maria once stabbed to the heart, with her own little dirk, the captain of a Liverpool brig; and on another occasion, to indulge her whim, a captain and two mates were tied to the windlass while Maria shot them with her pistol. Maria's last act at sea was to poison the whole crew of an Indiaman, who were prisoners on Cobham's ship. A short time later this pair retired from piracy and settled near Chartres.

20. It is clear that Cobham and his crew operated a
- 20–1 passenger ship.
- 20–2 pirate ship.
- 20–3 cargo vessel.
- 20–4 warship.
- 20–5 prisoner ship.

21. Maria's coming on board caused dissatisfaction among the crew because they
- 21–1 disapproved of women on shipboard.
- 21–2 took a personal dislike to her.
- 21–3 were afraid she would make the captain cautious.
- 21–4 felt that they as well as the captain should have female company.
- 21–5 wanted her for themselves.

22. Maria can best be described as
- 22–1 bloodthirsty.
- 22–2 unfaithful.
- 22–3 vengeful.
- 22–4 beautiful.
- 22–5 inefficient.

23. It is clear that Maria
- 23–1 was not suited to life on shipboard.
- 23–2 continued to be unpopular with the crew.
- 23–3 had considerable influence with the captain.
- 23–4 interceded with Cobham for captured sailors.
- 23–5 did not cooperate in Cobham's activities.

24. The "prizes" (middle of the paragraph) were
- 24–1 seamen.
- 24–2 ships.
- 24–3 large amounts of money.
- 24–4 rewards.
- 24–5 valuable cargoes.

25. How many ways of killing people are mentioned?
- 25–1 Six
- 25–2 Seven
- 25–3 Three
- 25–4 Four
- 25–5 Five

– – – – – – – – – –

A notoriously dull writer sent Thackeray a copy c ne of his books. Thackeray wrote him as follows: "our volume has arrived. I shall lose no time reading it

26. Thackeray meant that he
- 26–1 was in a hurry to start the book.
- 26–2 was in a hurry to finish the book.
- 26–3 expected to enjoy the book.
- 26–4 intended to read the book as rapidly as possible.
- 26–5 did not intend to read the book.

– – – – – – – – – –

Go on to the next ge.

v turtles are able to carry on a serious offensive
e. Most of them are better equipped defensively,
g a carapace, or upper shell, and a plastron, or lower
This armor varies from that of the box turtle,
can completely enclose itself in its hard shells, to
oft-shelled turtle, whose flabby cartilaginous cara-
is little more protective than a pancake.
ne turtles, like the alligator snapping turtle, are
and dangerous; others cannot inflict any injury.
es live everywhere. Land dwellers, or tortoises,
domical top shells and elephantine legs. One
es, the gopher tortoise, lives underground. Other
s, like the green turtle and the hawksbill, who live
ocean, have flippers instead of legs; and terrapins,
ly at home on land or in the water, have webbed feet.
ey range in size from the four-inch mud turtle to the
trunkback, sometimes over eight feet long. Some
neat eaters, others are vegetarians, and others are
ussy.

The central thought of this passage is that turtles
27–1 are poor fighters.
27–2 will eat almost anything.
27–3 differ widely in many ways.
27–4 are well protected from their enemies.
27–5 live in all kinds of places.

The name given to the turtle's lower shell is
28–1 plastron.
28–2 carapace.
28–3 armor.
28–4 cartilage.
28–5 pancake.

The gopher tortoise
29–1 looks like a gopher.
29–2 lives in shallow ponds.
29–3 lives underground.
29–4 eats anything he can find.
29–5 stores his food.

30. The passage states that webbed feet are found on the
30–1 soft-shelled turtles.
30–2 terrapins.
30–3 alligator snapping turtles.
30–4 green turtles.
30–5 mud turtles.

* * * * * * * *

31. The green turtle and the hawksbill are alike in having
31–1 flippers.
31–2 soft shells.
31–3 large legs.
31–4 domical top shells.
31–5 bad dispositions.

32. The largest turtle mentioned is the
32–1 box turtle.
32–2 alligator snapping turtle.
32–3 tortoise.
32–4 hawksbill.
32–5 trunkback.

33. The passage implies that the best protected of the turtles mentioned is the
33–1 box turtle.
33–2 hawksbill.
33–3 mud turtle.
33–4 green turtle.
33–5 trunkback.

34. The turtles that are "not fussy" (last sentence) are not fussy about
34–1 where they live.
34–2 whom they injure.
34–3 whom they associate with.
34–4 how they are treated.
34–5 what they eat.

– – – – – – – – – –

Go on to the next page.

Mario, Deacon Clapp's hired man, was the first Italian to settle in Oakley. He was sociable and felt a strong interest in the town. Once, when Luke Dunn was soliciting contributions for the Oakley baseball team, he got five dollars from the Deacon, ten from Dan Freeman, and five from Bob Moore, all within sight of the field where Mario was plowing.

That afternoon at milking time Mario hung his head and a tear dropped into the pail. He would not eat and went to bed and turned his face to the wall. In the middle of the night he told his wife what was wrong. He had his first papers and knew the answers for his second papers. People spoke to him; his children went to school. Still he did not belong. Other men gave money for the team; he was not asked. His son Fripper, the newsboy, heard what was said and dropped in early the next morning at Luke's. If Mario missed his supper, Luke could not swallow his breakfast. He stayed home from work and made a list of all the Italians in Oakley, ruling it in red ink. At ten o'clock, he dressed in his best clothes and called on Mario, who was plowing doggedly.

"Mario," he said, "you're just the man I wanted to see. I've canvassed a few individuals, but the boys suggested that you be head solicitor of the Italian-American colony. Will you ask the men I have listed here to chip in for the baseball uniforms?"

Suddenly in Mario's ears the orioles sang; he was aware of the brightness of the sun and the fragrance of the earth. He saw the red ink, the neat columns, and his name at the top. He understood now why, in canvassing mere individuals, not the deans of racial groups, he had not been approached the day before.

35. When Luke did not ask for a contribution, Mario was
35–1 hurt.
35–2 angry.
35–3 amused.
35–4 puzzled.
35–5 relieved.

36. Probably the reason Luke did not ask Mario to contribute in the first place was that Luke
36–1 thought his contribution would be too small to bother with.
36–2 intended to call on him the next day.
36–3 thought he would be annoyed at being asked.
36–4 thought he was not good enough to do so.
36–5 thought he did not have the money to spare.

37. Luke can best be described as
37–1 generous with money.
37–2 vain.
37–3 cruel.
37–4 tenderhearted.
37–5 interested in money.

38. Luke was also
38–1 awkward.
38–2 tactful.
38–3 truthful.
38–4 self-important.
38–5 meek.

39. The "papers" referred to in the second paragraph were
39–1 newspapers.
39–2 school examinations.
39–3 the list of Italian-Americans.
39–4 Mario's passport and entry permit.
39–5 citizenship papers.

40. It is obvious that Fripper
40–1 told Luke how his father felt.
40–2 told his father that Luke would soon visit him.
40–3 let his father know that he knew what the trouble was.
40–4 wanted to play on the baseball team.
40–5 did not sympathize with his father.

41. Mario wanted most of all to
41–1 have a good baseball team.
41–2 have his son participate in school activities.
41–3 feel himself part of the town.
41–4 be the most important man in the Italian-American colony.
41–5 be a friend of Luke's.

42. In the last paragraph, Mario is pictured as
42–1 bewildered.
42–2 happy.
42–3 disappointed.
42–4 amused.
42–5 frightened.

– – – – – – – – – –

Go on to the next age.

We noted that Faraday in this country and Henry in America by their discovery of electro-magnetic induction brought electricity into use. It was not long before this was applied to the sending of messages. In 1840 Wheatstone brought a project before the House of Commons for a cable between Dover and Calais. In 1843 Morse wrote to the Secretary of the United States about the experiments he had made with a telegraph in 1844 between Washington and Baltimore and expressed his confidence that communication could be established across the Atlantic. In 1848 Morse did stretch under New York harbor a submarine cable that was successful.

In 1850 a Mr. Brett, a Scottish engineer working in London, obtained a concession to lay a cable under the Straits of Dover. Although the newspapers regarded the project as a gigantic swindle, the cable of solid copper wire coated with gutta-percha was laid and communication established.

After messages had come through for a few hours, they failed. The explanation was that an industrious fisherman had pulled up the cable in his trawl and, having a good hacksaw on board, had cut out a section. This he took back to Boulogne and exhibited as a rare and precious seaweed with a golden center.

In 1851 an improved cable was laid under the Straits and was successful. Others followed to Ireland and the Continent—but the Atlantic remained unconquered.

The writer of this passage appears to be
43–1 Scottish.
43–2 Irish.
43–3 English.
43–4 Continental European.
43–5 American.

The writer has made a mistake in a date. In which one of the following pairs are the dates inconsistent with each other?
44–1 1840 in line 5 and 1843 in line 7
44–2 1843 in line 7 and 1844 in line 9
44–3 1844 in line 9 and 1848 in line 12
44–4 1848 in line 12 and 1850 in line 15
44–5 1850 in line 15 and 1851 in line 28

45. Which one of the following men is regarded by the writer as *not* well-known?
45–1 Faraday
45–2 Henry
45–3 Brett
45–4 Wheatstone
45–5 Morse

46. The newspapers regarded the first laying of a cable under the Straits of Dover as
46–1 costly but useful.
46–2 harmless but impracticable.
46–3 dishonest and fraudulent.
46–4 worth while but not likely to succeed.
46–5 worth while and likely to succeed.

47. The center of the seaweed exhibited in Boulogne was
47–1 copper.
47–2 yellow vegetable matter.
47–3 gutta-percha.
47–4 gold.
47–5 an unknown substance.

48. The writer says Morse laid a cable
48–1 under the Straits of Dover.
48–2 under the Atlantic.
48–3 under New York harbor.
48–4 between England and the Continent.
48–5 between England and Ireland.

49. In the material following this passage the writer will probably discuss
49–1 Faraday's and Henry's electro-magnetic experiments.
49–2 the fate of Wheatstone's proposal to the House of Commons.
49–3 what happened to the fisherman.
49–4 Brett's return to Scotland.
49–5 attempts to lay a cable under the Atlantic.

Go on to the next page.

The veery, or Wilson's thrush, is most easily distinguished by its peculiarly resonant song. Its brown and black spotted breast reminds one of other eastern thrushes. The veery flies from its home in the bushes to hunt for beetles, snails, and wild vegetation. It is sometimes seen as high as 5,000 feet in the Pine Ridge of Carolina. Closely related to the veery is the willow thrush, which breeds in Oregon, Nevada, Utah, New Mexico, and Iowa and winters as far south as Brazil, but which never appears in the East.

Other thrushes found in the United States are Alice's thrush, better known as the gray-cheeked thrush, whose range extends from Alaska and all parts of the United States to Peru; the smaller but no less talented songster of the Catskills and northern New England, Bicknell's thrush; the russet-backed thrush of the Pacific Coast; and the varied thrush of the West, which sometimes straggles as far east as Massachusetts.

50. How many *different* kinds of thrushes are mentioned in the passage?
50–1 Nine
50–2 Eight
50–3 Seven
50–4 Six
50–5 Five

51. The veery is most easily recognized by its
51–1 coloring.
51–2 manner of flight.
51–3 nesting habits.
51–4 eating habits.
51–5 song.

52. Another name for the gray-cheeked thrush is
52–1 veery.
52–2 willow thrush.
52–3 Bicknell's thrush.
52–4 Alice's thrush.
52–5 thrush of the West.

53. The willow thrush never appears in
53–1 Oregon.
53–2 Nevada.
53–3 New Mexico.
53–4 Iowa.
53–5 Massachusetts.

54. The passage states that Bicknell's thrush is smaller than
54–1 Wilson's thrush.
54–2 the willow thrush.
54–3 Alice's thrush.
54–4 the russet-backed thrush.
54–5 the varied thrush.

55. The two thrushes mentioned as being found in South America are the gray-cheeked thrush and
55–1 Wilson's thrush.
55–2 the willow thrush.
55–3 Bicknell's thrush.
55–4 the russet-backed thrush.
55–5 the varied thrush.

56. The passage implies that the gray-cheeked thrush
56–1 is very tiny.
56–2 has a limited range.
56–3 is a good singer.
56–4 is found only in the West.
56–5 is found only in the East.

57. How many of the thrushes mentioned are regularly found in the western part of the United States?
57–1 Six
57–2 Two
57–3 Three
57–4 Four
57–5 Five

58. The best title for this passage is
58–1 Little-Known Thrushes.
58–2 Thrushes of the United States.
58–3 The Veery and Its Habits.
58–4 Wide-Ranging Thrushes.
58–5 The Veery and the Willow Thrush.

– – – – – – – – – –

A woman whose son had invited his Sunday-s ool class for a Saturday afternoon party went to the ugstore for a gallon of ice cream. There was a high-s ool girl at the soda fountain and she said that she d n't think she ought to sell a gallon—it might leave the f untain short of supplies. Thinking fast, the woman id, "Well, all right. Let me have four quarts, then."

"O. K.," the young lady said, beaming at this dis ay of good sportsmanship. "What flavors?"

59. There is no point to the story unless the reader knows that
59–1 high-school girls make poor salesgirls.
59–2 the Sunday-school class had already been invited to the party.
59–3 the woman thinks that four quarts of ice cream are less than a gallon.
59–4 a gallon contains four quarts.
59–5 there was a shortage of ice cream at the time.

Go on to the next p e.

The purpose of the writer is to
60–1 criticize the woman for taking advantage of the girl.
60–2 show that there really was no shortage of ice cream.
60–3 show that the high-school girl was not fit for her job.
60–4 point out the advantages of good sportsmanship.
60–5 tell an amusing story.

* * * * * * * *

Thumbing through *Outline of History*, I came face to face with my first Brontosaurus. He or she (the author never said) stood beside a tiny figure labeled "six-foot man." Compared with this pigmy, the Brontosaurus was colossal. He had a long thick tail hanging down in the water, one wide left front paw (the other three were submerged in slime), an immense stomach, a neck like a fat snake, and, topping all this off, a peanut-sized head. The awkward beast wore an expression at once shy and childishly eager and cheerful. His tiny eyes sparkled and a smile caressed his generous mouth.

"Take a look," I called over to Dot.

Her eyes bulged as she regarded the Brontosaurus.

"He's doomed," I reported briskly, scanning the pages for words I could understand. "He was wiped out. The climate got him."

My sister blinked. She had lived through ten years of climate, good and bad, but apparently you never knew when you might be wiped out.

In comparison with the rest of his body, the Brontosaurus had a very small
61–1 tail.
61–2 left front paw.
61–3 stomach.
61–4 neck.
61–5 head.

The most pleasant thing about the Brontosaurus was his
62–1 expression.
62–2 environment.
62–3 well-proportioned body.
62–4 gracefulness.
62–5 descendants.

63. According to the writer of the passage, the author of *Outline of History* gave no information about the Brontosaurus's
63–1 size.
63–2 sex.
63–3 eventual fate.
63–4 ancestors.
63–5 living conditions.

64. From the passage the reader knows
64–1 how old Dot was.
64–2 what Dot looked like.
64–3 what sort of disposition Dot had.
64–4 how intelligent Dot was.
64–5 who Dot's parents were.

65. Dot was apparently
65–1 jealous of her sister.
65–2 older than her sister.
65–3 suspicious that her sister might be making fun of her.
65–4 ready to believe what her sister told her.
65–5 more interested in history than her sister was.

66. Dot's feelings as she looked at the Brontosaurus were mainly of
66–1 admiration.
66–2 astonishment.
66–3 annoyance at being interrupted.
66–4 amusement.
66–5 anger.

67. "Pigmy" in line 5 refers to
67–1 I (line 1).
67–2 Brontosaurus (line 2).
67–3 he or she (lines 2 and 3).
67–4 author (line 3).
67–5 man (line 4).

68. "Generous" in line 12 means most nearly
68–1 openhanded.
68–2 extravagant.
68–3 wide.
68–4 loose.
68–5 gaping.

69. "Got" in line 19 means most nearly
69–1 captured.
69–2 reached.
69–3 annoyed.
69–4 killed.
69–5 struck.

– – – – – – – – – – –

Go on to the next page.

(1) At no single spot on the South American con-
(2) tinent can the steps of man's conquest of the Andes
(3) be seen more clearly than at the famous Uspallata
(4) Pass between Chile and Argentina.
(5) Indians of the days before the coming of the
(6) white men climbed along a narrow path, perhaps
(7) with llamas carrying their belongings. These
(8) "little camels" of the Andes were the only burden
(9) bearers the Incas had in the four hundred years
(10) when they were extending their empire from Peru
(11) to Chile and northward to Quito. These animals
(12) could live at altitudes of over two and one-half
(13) miles above sea level, where in later days the horses
(14) and mules of the conquerors would die of mountain
(15) sickness.
(16) Over this road, if a llama path can be called a
(17) road, a single explorer or trader went now and
(18) again in the days of the conquistadors. But the
(19) traveled route across the continent was farther
(20) north, across from Peru to Upper Peru (now
(21) Bolivia), through western Paraguay, and then
(22) down to Buenos Aires. The southern Andes prac-
(23) tically shut the door between Chile and Argentina.

70. The Uspallata Pass is between Argentina and

70–1 Peru.
70–2 Quito.
70–3 Paraguay.
70–4 Chile.
70–5 Bolivia.

71. The "little camels" of the Andes were

71–1 small horses.
71–2 mules.
71–3 goats.
71–4 donkeys.
71–5 llamas.

72. The passage states that these "little camels" could

72–1 travel long distances without water.
72–2 travel long distances without rest.
72–3 live at high altitudes.
72–4 carry extremely heavy loads.
72–5 find their way readily through the mountains.

73. "Their" in line 7 refers to

73–1 Indians (line 5).
73–2 white men (line 6).
73–3 llamas (line 7).
73–4 burden bearers (lines 8 and 9).
73–5 Incas (line 9).

74. Bolivia was formerly called

74–1 Upper Chile.
74–2 Upper Peru.
74–3 Western Peru.
74–4 Western Paraguay.
74–5 Upper Argentina.

75. The writer of this passage probably goes on to tell how

75–1 communication has been improved between Chile and Argentina.
75–2 even before the Incas there was a trail across the pass.
75–3 the Andes still prevent travel between Chile and Argentina.
75–4 Argentina for a long time opposed easy travel to Chile.
75–5 Chile for a long time opposed easy travel to Argentina.

– – – – – – – – – –

Go on to the next ge.

The deacon, who was a pious elderly man with a long white beard, went to prayer service every morning. A middle-aged maiden lady also worshiped every morning in the same church and sat in the pew immediately in front of him. One day when the Litany was being said, the lady, growing tired of kneeling so long, raised herself from her knees and sat quietly back in her pew. Presently she was aware of a tickling on her neck and at once concluded that some strands of her back hair had come down. She felt with her hands and found some loose hair there; so with a few deft adjustments of hairpins, she secured it firmly again. When the Litany was over, the deacon attempted to rise from his knees and found that he was tethered to the lady in front and could not move. At the same time she felt some mysterious force pulling at the back of her neck. He was the first to perceive what had happened and angrily whispered to her, "You have pinned my beard into your back hair. Release it at once."

Any observers of this incident must have been greatly
76–1 distressed.
76–2 bored.
76–3 amused.
76–4 enraged.
76–5 disgusted.

The lady's *first* feeling when she understood what the deacon whispered was most likely one of
77–1 astonishment.
77–2 pleasure.
77–3 gratitude.
77–4 sorrow.
77–5 anger.

The deacon was not justified in
78–1 having so long a beard.
78–2 going to church every morning.
78–3 kneeling during the Litany.
78–4 getting angry with the lady.
78–5 telling the lady what the trouble was.

This incident could not have happened if
79–1 the deacon's beard had been brown.
79–2 the lady had had white hair.
79–3 the lady had had short hair.
79–4 the lady had not knelt for the Litany.
79–5 saying the Litany had taken more time than it did.

80. The deacon did not say anything earlier because he
80–1 thought the whole thing was a joke.
80–2 was unwilling to interrupt the service.
80–3 hoped the lady would notice it herself.
80–4 was praying and did not realize what had happened.
80–5 thought he could get his beard loose by himself.

81. Which one of the following words is particularly well chosen?
81–1 Tickling (line 9)
81–2 Deft (line 12)
81–3 Tethered (line 16)
81–4 Mysterious (line 17)
81–5 Whispered (line 19)

– – – – – – – – – – –

Nature sets her dances to every rhythm, from slow movements to swift dangerous rushes that bring wild excitement. The long pendulum swing of trees is restful with the content of a return after swaying out from a fixed place, which implies balance and vitality. In the same way a poised mind sweeps out to all new ideas but is not torn from its place because of its roots.

82. "Content" in line 4 most nearly means
82–1 satisfaction.
82–2 significance.
82–3 amount.
82–4 desire.
82–5 prospect.

83. The poised mind reacts to new ideas with
83–1 acceptance.
83–2 rejection.
83–3 sweeping judgments.
83–4 interest.
83–5 lack of interest.

84. To make his point, the writer compares the poised mind to
84–1 an uprooted tree.
84–2 a well-rooted tree.
84–3 nature's dances.
84–4 a swaying pendulum.
84–5 the roots of a tree.

– – – – – – – – – – –

Go on to the next page.

Dr. Ringer drew one of his newly perfected matches out of a desk drawer and permitted us to inspect it at a distance of four feet. It was three inches long and a little thicker than a wooden kitchen match and was made of a grayish substance. He poked it into the flame of an ordinary match and nothing happened. He then struck it against a piece of brown stone and it ignited. "It will light only from a special striker, which is everlasting," the Doctor said. "You get at least eighty lightings, of four seconds each, to an inch. It takes only two seconds to light a cigarette; so you can light around five hundred cigarettes with each match."

85. The main advantage of the new match is that it

85–1 remains burning longer than an ordinary match.
85–2 burns with a hotter flame than an ordinary match.
85–3 is thicker than a kitchen match.
85–4 can be lighted only with a special striker.
85–5 can be used many times.

86. It may be found that one of the principal disadvantages of the new match is that it

86–1 burns the fingers of anyone who holds it.
86–2 cannot easily be blown out.
86–3 is larger than an ordinary match.
86–4 will not light from the flame of an ordinary match.
86–5 requires the use of a special striker.

87. After the new match has been lighted eighty times (four seconds to each lighting), it will be about

87–1 1 inch long.
87–2 2 inches long.
87–3 3 inches long.
87–4 4 inches long.
87–5 2½ inches long.

88. The passage indicates that Dr. Ringer

88–1 had not seen the new match before he showed it to the writer.
88–2 did not invent the new match.
88–3 thinks the new match is dangerous.
88–4 would not let the writer handle the new match.
88–5 does not expect the new match to become popular.

89. It is probable that the onlookers were kept at a distance of four feet because

89–1 the new match is dangerous.
89–2 the nature of the new match is a secret.
89–3 Dr. Ringer did not know who they were.
89–4 Dr. Ringer needed room for his demonstration.
89–5 they could observe better from that distance.

90. It seems likely that Dr. Ringer over-estimated the number of cigarettes that could, in everyday use, be lit with one of the new matches since

90–1 it takes less than two seconds to light a cigarette.
90–2 the match will not burn for 1000 seconds.
90–3 the part of the match held in the fingers cannot be burned.
90–4 a special striker must be used.
90–5 he does not say he has actually counted the number.

* * * * * * * *

If you finish before time is called, check your work on any part of this test.

MECHANICS OF EXPRESSION TEST A

PART I

GRAMMATICAL USAGE

Time—15 minutes

ons: Read each sentence and decide whether there is an error in usage in any of the underlined parts of the ce. If so, note the number printed under the wrong word or phrase. Then blacken the space on the answer nder the number corresponding to the error. If there is no usage error in the sentence, blacken the space under indicate that the sentence is correct.

tence has more than one error, and some sentences do not have any errors. The sentences are to be judged on is of correct usage for careful written English.

s:

Sample Answer Sheet

	1	2	3	4	0
I.	☐	■	☐	☐	☐
II.	☐	☐	☐	☐	■

e $\underset{1}{\underline{\text{says}}}$ that he $\underset{2}{\underline{\text{ain't}}}$ coming $\underset{3}{\underline{\text{home}}}$ with $\underset{4}{\underline{\text{us}}}$ today.

he $\underset{1}{\underline{\text{isn't}}}$ $\underset{2}{\underline{\text{ready}}}$ to $\underset{3}{\underline{\text{go}}}$ $\underset{4}{\underline{\text{home}}}$.

estion I the word ain't is incorrect; therefore, the space under "2" has been blackened. Since there is no n any of the underlined parts in question II, the space under "0" has been blackened.

$\underset{1}{\underline{\text{While}}}$ he was recovering $\underset{2}{\underline{\text{from}}}$ scarlet fever, he $\underset{3}{\underline{\text{begun}}}$ to develop an interest in collecting $\underset{4}{\underline{\text{foreign}}}$ postage stamps.

The $\underset{1}{\underline{\text{most}}}$ important guests $\underset{2}{\underline{\text{are}}}$ $\underset{3}{\underline{\text{those}}}$ $\underset{4}{\underline{\text{there}}}$ men standing near the piano.

The parents had hardly $\underset{1}{\underline{\text{left}}}$ the house $\underset{2}{\underline{\text{than}}}$ the youngest child $\underset{3}{\underline{\text{began}}}$ to scream with $\underset{4}{\underline{\text{fright}}}$.

Can't you remember $\underset{1}{\underline{\text{what}}}$ you $\underset{2}{\underline{\text{was}}}$ supposed $\underset{3}{\underline{\text{to buy}}}$ with $\underset{4}{\underline{\text{that}}}$ money?

The attorney, $\underset{1}{\underline{\text{who}}}$ had expected to $\underset{2}{\underline{\text{lose}}}$ the case, drew a $\underset{3}{\underline{\text{breath}}}$ of relief and $\underset{4}{\underline{\text{run}}}$ over to shake hands with the foreman of the jury.

You don't $\underset{1}{\underline{\text{never}}}$ have to be $\underset{2}{\underline{\text{afraid}}}$ of an empty house $\underset{3}{\underline{\text{because}}}$ there $\underset{4}{\underline{\text{are}}}$ no such things as ghosts.

I have tried to be $\underset{1}{\underline{\text{friendly}}}$ $\underset{2}{\underline{\text{with}}}$ her, but she $\underset{3}{\underline{\text{don't}}}$ seem to be interested in $\underset{4}{\underline{\text{having}}}$ friends.

James $\underset{1}{\underline{\text{come}}}$ running breathlessly $\underset{2}{\underline{\text{into}}}$ the room $\underset{3}{\underline{\text{to tell}}}$ the exciting news of $\underset{4}{\underline{\text{his}}}$ victory.

9. Why $\underset{1}{\underline{\text{did}}}$ you tell $\underset{2}{\underline{\text{me}}}$ you $\underset{3}{\underline{\text{was}}}$ not going to leave $\underset{4}{\underline{\text{before}}}$ I returned?

10. $\underset{1}{\underline{\text{That}}}$ was a dangerous thing $\underset{2}{\underline{\text{for}}}$ you to do; you might $\underset{3}{\underline{\text{of}}}$ been seriously hurt $\underset{4}{\underline{\text{by}}}$ that flying glass.

11. Is $\underset{1}{\underline{\text{two}}}$ dollars a $\underset{2}{\underline{\text{week}}}$ an $\underset{3}{\underline{\text{adequate}}}$ allowance $\underset{4}{\underline{\text{for}}}$ a high-school girl?

12. $\underset{1}{\underline{\text{If}}}$ there is no music $\underset{2}{\underline{\text{on}}}$ the radio, I $\underset{3}{\underline{\text{lay}}}$ down and sleep for an $\underset{4}{\underline{\text{hour}}}$ after dinner.

13. Has the child told $\underset{1}{\underline{\text{you}}}$ why he $\underset{2}{\underline{\text{don't}}}$ want to play with $\underset{3}{\underline{\text{other}}}$ children $\underset{4}{\underline{\text{his}}}$ age?

14. Little Miss Muffet is the girl in the nursery rhyme $\underset{1}{\underline{\text{who}}}$ was frightened by a spider $\underset{2}{\underline{\text{which}}}$ $\underset{3}{\underline{\text{set}}}$ down $\underset{4}{\underline{\text{beside}}}$ her.

15. It doesn't make $\underset{1}{\underline{\text{no}}}$ difference $\underset{2}{\underline{\text{whether}}}$ we get $\underset{3}{\underline{\text{there}}}$ today or tomorrow $\underset{4}{\underline{\text{so long as}}}$ we arrive in time for the wedding.

16. As soon $\underset{1}{\underline{\text{as}}}$ they $\underset{2}{\underline{\text{seen}}}$ that the game was $\underset{3}{\underline{\text{lost}}}$, the boys left the baseball diamond, but not $\underset{4}{\underline{\text{without}}}$ lusty boos for their opponents.

Go on to the next page.

/e is better than $\underset{1}{\underline{\text{me}}}$ $\underset{2}{\underline{\text{at}}}$ $\underset{3}{\underline{\text{saying}}}$ the right $\underset{4}{\underline{\text{thing}}}$ at
e right time.

Vhen the sales department held a dance $\underset{1}{\underline{\text{on}}}$ Christ-
as Eve, $\underset{2}{\underline{\text{all}}}$ the staff $\underset{3}{\underline{\text{accept}}}$ the new errand boy
$\underset{4}{\underline{\text{ttended}}}$.

an you imagine how $\underset{1}{\underline{\text{we}}}$ volunteers felt $\underset{2}{\underline{\text{when}}}$ we
ere called into the office $\underset{3}{\underline{\text{to be paid}}}$ for our work
$\underset{4}{\underline{\text{uring}}}$ the emergency?

Vhether you $\underset{1}{\underline{\text{leave}}}$ him undertake this new assign-
ent or $\underset{2}{\underline{\text{not}}}$, you are sure $\underset{3}{\underline{\text{to lose}}}$ his confidence
oner or $\underset{4}{\underline{\text{later}}}$.

he conductor will not $\underset{1}{\underline{\text{raise}}}$ his baton $\underset{2}{\underline{\text{except}}}$ he is
$\underset{3}{\underline{\text{tisfied}}}$ that all noise in the auditorium $\underset{4}{\underline{\text{has ceased}}}$.

tween you and $\underset{1}{\underline{\text{I}}}$, I don't want to go $\underset{2}{\underline{\text{there}}}$ for
nner this evening, but I $\underset{3}{\underline{\text{can't}}}$ offend our hostess
$\underset{4}{\underline{\text{refusing}}}$ the invitation.

rs. Brown asked $\underset{1}{\underline{\text{us}}}$ girls to stay $\underset{2}{\underline{\text{longer}}}$, but we
d her that we $\underset{3}{\underline{\text{hadn't ought}}}$ to get home $\underset{4}{\underline{\text{too}}}$ late.

never forgot her $\underset{1}{\underline{\text{first}}}$ Latin teacher; no $\underset{2}{\underline{\text{one}}}$
d helped her $\underset{3}{\underline{\text{more}}}$ than $\underset{4}{\underline{\text{him}}}$.

d the guard been aware of $\underset{1}{\underline{\text{there}}}$ embarrassment,
would not have kept $\underset{2}{\underline{\text{them}}}$ waiting $\underset{3}{\underline{\text{while}}}$ the
ers filed $\underset{4}{\underline{\text{into}}}$ the museum.

$\underset{1}{\underline{\text{was told}}}$ $\underset{2}{\underline{\text{that}}}$ the woman dressed in black was
one $\underset{3}{\underline{\text{who}}}$ all the townspeople $\underset{4}{\underline{\text{suspected}}}$.

ny errors $\underset{1}{\underline{\text{are made}}}$ on examinations $\underset{2}{\underline{\text{on account of}}}$
dents $\underset{3}{\underline{\text{read}}}$ the questions $\underset{4}{\underline{\text{too}}}$ hastily.

e $\underset{1}{\underline{\text{main}}}$ feature $\underset{2}{\underline{\text{of}}}$ this building $\underset{3}{\underline{\text{are}}}$ $\underset{4}{\underline{\text{its}}}$ large rooms.

e young man found $\underset{1}{\underline{\text{himself}}}$ $\underset{2}{\underline{\text{with}}}$ neither friend
relation in a land he $\underset{4}{\underline{\text{scarcely}}}$ knew.

30. Because the stormy weather had kept away the winter guests $\underset{1}{\underline{\text{who}}}$ we had counted upon, we $\underset{2}{\underline{\text{found}}}$, after paying our bills, that we had made $\underset{3}{\underline{\text{only}}}$ $\underset{4}{\underline{\text{about}}}$ fifty dollars.

31. His uncivil remark $\underset{1}{\underline{\text{was addressed}}}$ neither to the policeman $\underset{2}{\underline{\text{nor}}}$ to me but to a meek little man $\underset{3}{\underline{\text{standing}}}$ at the edge of the $\underset{4}{\underline{\text{crowd}}}$.

32. $\underset{1}{\underline{\text{Anyone}}}$ who $\underset{2}{\underline{\text{is}}}$ implicated in a crime $\underset{3}{\underline{\text{is}}}$ always ready to deny $\underset{4}{\underline{\text{their}}}$ part in it.

33. He $\underset{1}{\underline{\text{had trained}}}$ $\underset{2}{\underline{\text{himself}}}$ to write effectively and to speak as $\underset{3}{\underline{\text{careful}}}$ as he $\underset{4}{\underline{\text{wrote}}}$.

34. From the way he $\underset{1}{\underline{\text{acted}}}$, you might think that they had $\underset{2}{\underline{\text{purposely}}}$ forgotten to assign $\underset{3}{\underline{\text{him}}}$ a seat in the reserved $\underset{4}{\underline{\text{section}}}$ of the grandstand.

35. What is the purpose behind $\underset{1}{\underline{\text{him}}}$ going to California when there $\underset{2}{\underline{\text{are}}}$ so $\underset{3}{\underline{\text{many}}}$ business opportunities in the $\underset{4}{\underline{\text{East}}}$?

36. There $\underset{1}{\underline{\text{has}}}$ been many times $\underset{2}{\underline{\text{when}}}$ it has been necessary for $\underset{3}{\underline{\text{me}}}$ to choose $\underset{4}{\underline{\text{between}}}$ the right way and the easy way.

37. When they $\underset{1}{\underline{\text{were}}}$ children, they $\underset{2}{\underline{\text{use}}}$ to think that the eggs which they found in $\underset{3}{\underline{\text{their}}}$ Easter baskets were $\underset{4}{\underline{\text{laid}}}$ by rabbits.

38. The florist said that he had never $\underset{1}{\underline{\text{gave}}}$ anyone stale flowers and that he $\underset{2}{\underline{\text{would}}}$ replace them without charge if they $\underset{3}{\underline{\text{did}}}$ not $\underset{4}{\underline{\text{last}}}$.

39. The customer $\underset{1}{\underline{\text{told}}}$ my father and $\underset{2}{\underline{\text{I}}}$ that our $\underset{3}{\underline{\text{bakery}}}$ shop was the $\underset{4}{\underline{\text{finest}}}$ in the city.

40. The inspector $\underset{1}{\underline{\text{knew}}}$ $\underset{2}{\underline{\text{that}}}$ either the watchman $\underset{3}{\underline{\text{or}}}$ the janitor $\underset{4}{\underline{\text{were}}}$ mistaken about the time of the fire.

41. $\underset{1}{\underline{\text{Who}}}$ did the judge $\underset{2}{\underline{\text{declare}}}$ the $\underset{3}{\underline{\text{winner}}}$ of the essay $\underset{4}{\underline{\text{contest}}}$?

Go on to the next page.

With only a $\underset{1}{\underline{\text{little}}}$ assistance $\underset{2}{\underline{\text{from}}}$ the scoutmaster, a $\underset{3}{\underline{\text{few}}}$ boys and $\underset{4}{\underline{\text{myself}}}$ built a cabin up in the Adirondacks last summer.

You will $\underset{1}{\underline{\text{never}}}$ guess $\underset{2}{\underline{\text{who}}}$ my employer $\underset{3}{\underline{\text{was speaking}}}$ to $\underset{4}{\underline{\text{this}}}$ afternoon.

The hunter $\underset{1}{\underline{\text{lay}}}$ waiting in the thicket, $\underset{2}{\underline{\text{for}}}$ he felt $\underset{3}{\underline{\text{sure}}}$ that at any minute the deer $\underset{4}{\underline{\text{would have returned}}}$ to the little stream.

$\underset{1}{\underline{\text{Send}}}$ it to a reliable dealer $\underset{2}{\underline{\text{whom}}}$ you $\underset{3}{\underline{\text{know}}}$ employs $\underset{4}{\underline{\text{only}}}$ skilled workers.

Dr. Jones asked that $\underset{1}{\underline{\text{we}}}$ girls $\underset{2}{\underline{\text{be allowed}}}$ to remain $\underset{3}{\underline{\text{in}}}$ the library $\underset{4}{\underline{\text{after}}}$ the regular closing time.

Neither George $\underset{1}{\underline{\text{nor}}}$ $\underset{2}{\underline{\text{his}}}$ brother could find $\underset{3}{\underline{\text{their}}}$ hat in the $\underset{4}{\underline{\text{cluttered}}}$ closet.

$\underset{1}{\underline{\text{Our}}}$ complete stock $\underset{2}{\underline{\text{of}}}$ diamonds, silverware, and standard-make watches $\underset{3}{\underline{\text{are}}}$ going $\underset{4}{\underline{\text{on}}}$ the auction block.

When the proctor came $\underset{1}{\underline{\text{in}}}$ the room, all the boys were in $\underset{2}{\underline{\text{their}}}$ seats; nevertheless, he $\underset{3}{\underline{\text{felt}}}$ that some mischief had been done $\underset{4}{\underline{\text{during}}}$ his absence.

The older children, $\underset{1}{\underline{\text{too,}}}$ were given books $\underset{2}{\underline{\text{by}}}$ the trustees, but the books were different $\underset{3}{\underline{\text{than}}}$ $\underset{4}{\underline{\text{those}}}$ the tots received.

51. When the $\underset{1}{\underline{\text{latecomers}}}$ entered the lecture hall, they $\underset{2}{\underline{\text{discovered}}}$ $\underset{3}{\underline{\text{that}}}$ the second speaker had $\underset{4}{\underline{\text{all ready}}}$ been introduced.

52. The prosecuting attorney has $\underset{1}{\underline{\text{hinted}}}$ that the jury $\underset{2}{\underline{\text{is}}}$ $\underset{3}{\underline{\text{shortly}}}$ to be told from $\underset{4}{\underline{\text{who's}}}$ gun the shot was fired.

53. If anybody $\underset{1}{\underline{\text{calls}}}$, tell $\underset{2}{\underline{\text{them}}}$ that $\underset{3}{\underline{\text{I'll}}}$ return $\underset{4}{\underline{\text{at}}}$ four o'clock.

54. $\underset{1}{\underline{\text{Who}}}$ $\underset{2}{\underline{\text{did}}}$ the committee suggest $\underset{3}{\underline{\text{as}}}$ a possible candidate $\underset{4}{\underline{\text{for}}}$ the chairmanship?

55. Are you really planning $\underset{1}{\underline{\text{to}}}$ take $\underset{2}{\underline{\text{us}}}$ boys to the Christmas party or $\underset{3}{\underline{\text{have}}}$ you changed $\underset{4}{\underline{\text{your}}}$ mind?

56. $\underset{1}{\underline{\text{In}}}$ my opinion you $\underset{2}{\underline{\text{can rely}}}$ on either of the $\underset{3}{\underline{\text{candidates}}}$ to do $\underset{4}{\underline{\text{their}}}$ best to encourage social legislation.

57. It often happens that men $\underset{1}{\underline{\text{who}}}$ have talked most $\underset{2}{\underline{\text{emphatic}}}$ about the need $\underset{3}{\underline{\text{for}}}$ cooperation later $\underset{4}{\underline{\text{show}}}$ the least willingness to cooperate.

58. I suppose there is $\underset{1}{\underline{\text{hardly}}}$ an actor who has not $\underset{2}{\underline{\text{at}}}$ some time $\underset{3}{\underline{\text{seen}}}$ $\underset{4}{\underline{\text{themselves}}}$ in the part of Hamlet.

59. His wit and his $\underset{1}{\underline{\text{generally}}}$ cheerful nature $\underset{2}{\underline{\text{seems to}}}$ $\underset{3}{\underline{\text{make}}}$ $\underset{4}{\underline{\text{him}}}$ a popular person.

60. I did not like the $\underset{1}{\underline{\text{idea}}}$ of $\underset{2}{\underline{\text{you}}}$ waiting in this crowded station, but I never $\underset{3}{\underline{\text{could have found}}}$ you if we $\underset{4}{\underline{\text{had met}}}$ in the street.

Go on to the next part.

PART II

PUNCTUATION AND CAPITALIZATION

Time—15 minutes

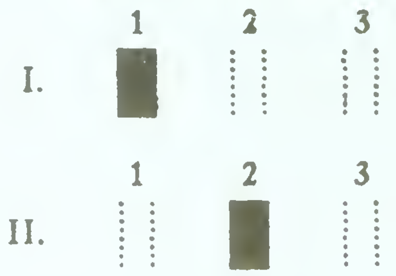
ions: At each numbered place in the passages below, you are to decide what punctuation, if any, is needed.
the group of choices having the same number, select the correct punctuation for that place and blacken the space
answer sheet beneath the number of your choice. ("N" means "no punctuation.")

e:

e came home yesterday
I II

I. (1) N (2) , (3) ;
II. (1) N (2) . (3) ?

Sample Answer Sheet



sample at the place marked I, no punctuation is required. "N," meaning "no punctuation," is choice 1; there-
he space under "1" has been blackened. Since a period is needed at the place marked II, the space under "2"
en blackened.

Until the ts on this typewriter are
1
repaired I wont be able to send Mr
2 3 4
Todds letters out on schedule.
5

1. (1) N (2) t's (3) ts'
2. (1) , (2) ;
3. (1) N (2) n't
4. (1) N (2) .
5. (1) N (2) d's

* * * * *

Susan Powers thirteen-year-old girl
6
marksman from Denver Colorado re-
7 8
turned to the United States from a two-
months' African safari yesterday bring-
9
ing along a record of a big-game bag
which many older explorers might envy.

6. (1) N (2) ,
7. (1) N (2) ,
8. (1) N (2) ,
9. (1) , (2) ;

In all Susan said she shot seven
10 11
buffaloes five leopards four crocodiles,
12 13
and many smaller animals.

10. (1) N (2) , (3) ,"
11. (1) N (2) , (3) , " (4) ,"
12. (1) N (2) ,
13. (1) N (2) ,

This was the second trip to Africa for
the blonde school-girl It was on
14
July 7 1946, that she started on
15
her first trip, and she hopes to go again
next January.

14. (1) N (2) , (3) ; (4) .
15. (1) N (2) ,

Mother Ive shot you enough
16 17 18
leopards for a fur coat Susan
19 20
cried as she greeted her mother
21

16. (1) N (2) "
17. (1) N (2) , (3) ", (4) ,"
18. (1) N (2) I've
19. (1) N (2) 's (3) s'
20. (1) N (2) , (3) ; (4) . (5) ?"
21. (1) N (2) . (3) ". (4) ."

Go on to the next page.

When asked what she was going to
do now she replied a little un-
22
happily I guess I'll have to go
23
back to school Classes seemed a
24
little dull after Africa she con-
25
fessed but gym was fun and so
26
was the school orchestra in which she
plays a trumpet.

22. (1) , (2) . (3) ,” (4) ,“
23. (1) N (2) , (3) ,“
24. (1) N (2) , (3) . (4) ,” (5) .”
25. (1) N (2) , (3) ,”
26. (1) N (2) , (3) ,“

* * * * *

“Where theres a will theres a
27 28
way was never more perfectly
29
illustrated than in George Wash-
30
ington Carvers career.
31

27. (1) N (2) e's (3) es'
28. (1) N (2) e's (3) es'
29. (1) N (2) , (3) ;” (4) ”
30. (1) N (2) ,
31. (1) N (2) r's

* * * * *

And what is treason he asked
32 33
lightly If we call it unsuccessful
34
ambition, we shall be, I think
35
nearer the truth He looked at me
36
keenly You are shocked General
37 38
Bragg he said I am sorry for
39 40
that. But you have never known the
curse and his voice vibrated the
41 42
curse of not being employed when you
should be employed
43

32. (1) N (2) “
33. (1) N (2) , (3) ,” (4) ?”
34. (1) N (2) , (3) ;” (4) .” (5) .“
35. (1) N (2) ,
36. (1) N (2) , (3) ; (4) . (5) .”
37. (1) N (2) , (3) . (4) ,“ (5) .“
38. (1) N (2) , (3) ,”
39. (1) N (2) , (3) ,” (4) .”
40. (1) N (2) , (3) . (4) .“
41. (1) N (2) , (3) ;” (4) ” —
42. (1) N (2) , (3) .“ (4) —“
43. (1) . (2) ” (3) .”

* * * * *

What is meant he asked
44 45 46
by a rolling stone gathers no
47
moss
48

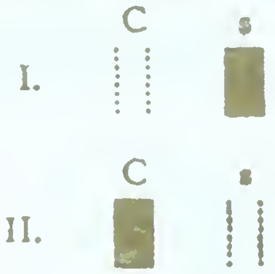
44. (1) N (2) “
45. (1) N (2) , (3) ? (4) ,” (5) ?”
46. (1) N (2) , (3) ,“ (4) ,“B (5) .”
47. (1) N (2) , (3) “ (4) ‘A (5) “A
48. (1) . (2) ? (3) .” (4) ’.” (5) ?”

Go on to the next page.

ns: In the passages below, study each numbered word and decide whether the word should be capitalized. If
k the word should be capitalized, blacken the space opposite that number under "C" on the answer sheet;
ink the word should be written with a small letter, blacken the space under "s" on the answer sheet. Some
hich should be capitalized do not have numbers under them. Do not consider such words. You are to be
d only with the numbered words.

Sample Answer Sheet

name is henry.
I II



We are not professional musicians; we will never
1
play with the london philharmonic orchestra; but
2 3 4
give us our note on the piano and we pick up our
5
instruments as mechanically as we pick up the
receiver of a ringing telephone. We are not con-
6
tent just to listen to haydn; we want to play
7
haydn. We know that beethoven's music is beauti-
8
ful because we have learned to play it.

* * * * *

"Did you know," he inquired, "that doctor
9 10 11
miller is now on the staff of the pittsburgh general
12 13 14 15
hospital? He retired from service in the united
16 17
states army just last january."
18 19 20

* * * * *

To the reverend josiah blake sunday was not
21 22
just another day. He rose at six a.m. and after
a brisk walk through memorial park he breakfasted
23
with clarke, his closest friend.

About eight o'clock he entered his study to read
a few chapters from the bible.
24

Go on to the next part.

PART III

SPELLING

Time—10 minutes

ections: In each of the following groups of words, select the word that is **misspelled** and blacken the space on the wer sheet under the number of your choice. If all four words in the group are **correctly** spelled, blacken the space the answer sheet under "0." No group has more than one misspelled word.

-1 measurement
-2 hesitate
-3 pursuit
-4 aviater
-0 *none wrong*

-1 controlled
-2 allmighty
-3 heroes
-4 busying
-0 *none wrong*

-1 dissatisfy
-2 analyze
-3 vigorous
-4 forehead
-0 *none wrong*

-1 marvelous
-2 absorption
-3 precise
-4 fullfil
-0 *none wrong*

-1 penetrate
-2 mercantile
-3 burglar
-4 sheperd
-0 *none wrong*

6-1 handicapped
6-2 indictment
6-3 bycicle
6-4 nationality
6-0 *none wrong*

7-1 parallel
7-2 nowdays
7-3 merchandise
7-4 quibble
7-0 *none wrong*

-1 veneer
-2 grammer
-3 intercept
-4 systematize
-0 *none wrong*

9-1 serene
9-2 opponent
9-3 counterfiet
9-4 cavalry
9-0 *none wrong*

10-1 miraculous
10-2 bleached
10-3 lenient
10-4 temperance
10-0 *none wrong*

11-1 contagious
11-2 insertion
11-3 meddelsome
11-4 physiology
11-0 *none wrong*

12-1 supplementery
12-2 ghastly
12-3 vaccinate
12-4 interpret
12-0 *none wrong*

13-1 fragrance
13-2 absurd
13-3 notorious
13-4 reminicence
13-0 *none wrong*

14-1 autobiography
14-2 rhetoric
14-3 predecesser
14-4 appealed
14-0 *none wrong*

15-1 acumulate
15-2 changeable
15-3 pitiful
15-4 perusal
15-0 *none wrong*

16-1 cemetary
16-2 makeshift
16-3 tragically
16-4 intrinsic
16-0 *none wrong*

17-1 advisory
17-2 implements
17-3 disappear
17-4 solitude
17-0 *none wrong*

18-1 stubborness
18-2 temporary
18-3 warrant
18-4 deplorable
18-0 *none wrong*

19-1 incurred
19-2 falsehood
19-3 morgage
19-4 precarious
19-0 *none wrong*

20-1 inconceivible
20-2 biscuit
20-3 scenic
20-4 persistent
20-0 *none wrong*

21-1 susceptible
21-2 reciprocal
21-3 brevety
21-4 embassy
21-0 *none wrong*

22-1 intervening
22-2 obnoxious
22-3 incidental
22-4 repreive
22-0 *none wrong*

23-1 ajournment
23-2 orphanage
23-3 ceiling
23-4 visualize
23-0 *none wrong*

24-1 outragous
24-2 medieval
24-3 query
24-4 surprise
24-0 *none wrong*

25-1 scarcity
25-2 sequel
25-3 respectively
25-4 census
25-0 *none wrong*

26-1 heinous
26-2 possessor
26-3 forbearance
26-4 recede
26-0 *none wrong*

27-1 auspices
27-2 hosery
27-3 perplexing
27-4 squirrel
27-0 *none wrong*

28-1 imply
28-2 chancellor
28-3 liesure
28-4 recipient
28-0 *none wrong*

29-1 likelyhood
29-2 congestion
29-3 subsequent
29-4 drainage
29-0 *none wrong*

30-1 prespiration
30-2 nuisance
30-3 tranquillity
30-4 ecstasy
30-0 *none wrong*

If you finish before time is called, check your work on any part of this test. Do *not* go back to the previous test. Do *not* go on to the next test until you are told to do so.

EFFECTIVENESS OF EXPRESSION TEST B1

PART I

SENTENCE STRUCTURE AND STYLE

Time—15 minutes

irections: Different versions of each passage of prose are given in the two columns below. In this part of the test ou will be asked to choose the better version of each section. First read quickly through Column 1 to get the meaning the whole passage. Then read the directions below.

Column 1	**Column 2**
–1 A Kansas City boy learned a rule that it is always best for one to go to the highest authority whenever a problem arises in his high-school civics class.	A–2 One of the rules a Kansas City boy learned in his high-school civics class was that it is always best to go to the highest authority with a problem.
–1 A neighborhood baseball team, of which he was the coach and manager, was ordered off the street by police.	B–2 In this neighborhood was a baseball team which was ordered off the street by the police. The boy was the manager, and he was also the coach.
–1 The boy wrote to the City Manager, pointing out that the city owned a large dump, no longer in use, which could be converted into a playground.	C–2 Writing to the City Manager, a dump was pointed out that the city owned and no longer used, and which could be converted into a playground.
–1 The playground with a fine baseball diamond being dedicated in July, a seat was reserved on the official stand for the boy.	D–2 The playground with a fine baseball diamond was dedicated in July, and the boy had a reserved seat on the official stand.

ompare the two versions of each lettered section and decide which one is better expressed. On the answer sheet, lacken the space labeled the same as the better version.

A. Section **A** is better expressed in
A–1 column 1.
A–2 column 2.

B. Section B is better expressed in
B–1 column 1.
B–2 column 2.

C. Section C is better expressed in
C–1 column 1.
C–2 column 2.

D. Section D is better expressed in
D–1 column 1.
D–2 column 2.

Go on to the next page.

Column 1		Column 2
When I was a little girl, my father took me one evening to visit a gypsy encampment a few miles from my home.	E–2	A visit was made one evening when I was a very little girl to a gypsy encampment a few miles from my home with my father.
Several tents made up the camp, and they were constructed of blankets and sail cloths, and these were spread over hoops, and which were stuck in the ground.	F–2	The camp consisted of several tents, made of blankets and sail cloths spread over hoops that were stuck in the ground.
It was situated on one side of a long green lane, close under a hawthorn hedge, with a tall elm tree spreading above it.	G–2	Set on one side of a long green lane, close under a hawthorn hedge, a tall elm tree was spreading above it.
A teakettle hanging by a crooked piece of iron over a fire made from dry sticks and leaves, and two old gypsies in red cloaks sitting on the grass gossiping over their evening cup of tea.	H–2	Over a fire made from dry sticks and leaves a teakettle hung by a crooked piece of iron; near it two old gypsies in red cloaks sat crouched on the grass gossiping over their evening cup of tea.
There were two or three small children sleeping on the straw with which the tents were littered; a couple of donkeys were grazing in the lane; and a thievish-looking dog was lying before the fire.	I–2	On the straw with which the tents were littered two or three small children were sleeping, and in the lane a couple of donkeys were grazing, and a thievish-looking dog was lying before the fire.
A fiddle was being played by a tall, slender boy who had on an old green coat and a peacock's feather that was stuck in his hatband, and some of the younger gypsies were dancing to the music.	J–2	Some of the younger gypsies were dancing to the music of a fiddle played by a tall, slender boy in an old green coat, with a peacock's feather stuck in his hatband.
Though my visit was made a long time ago, the picturesque camp and characters are still vivid recollections.	K–2	However, the picturesque camp and characters still remain vivid recollections even though my visit was made several years ago.

pare the two versions of each lettered section and decide which one is better expressed. On the answer sheet, ken the space labeled the same as the better version.

E. Section E is better expressed in
- E–1 column 1.
- E–2 column 2.

F. Section F is better expressed in
- F–1 column 1.
- F–2 column 2.

G. Section G is better expressed in
- G–1 column 1.
- G–2 column 2.

H. Section H is better expressed in
- H–1 column 1.
- H–2 column 2.

I. Section I is better expressed in
- I–1 column 1.
- I–2 column 2.

J. Section J is better expressed in
- J–1 column 1.
- J–2 column 2.

K. Section K is better expressed in
- K–1 column 1.
- K–2 column 2.

Go on to the next page.

Directions: Read each of the following groups of sentences carefully, then decide which one of the four choices in each group is expressed **most satisfactorily** and blacken the space on the answer sheet under the number of your choice.

1–1 Edith wrote in her notebook everything the teacher said with her new fountain pen and which was about the Industrial Revolution.
1–2 Edith wrote in her notebook with her new fountain pen everything the teacher said. Which was about the Industrial Revolution.
1–3 With her new fountain pen Edith wrote in her notebook everything the teacher said about the Industrial Revolution.
1–4 The teacher was talking about the Industrial Revolution and Edith wrote down everything she said about it with her fountain pen which was a new one.

2–1 In high school we form many friendships. Some that continue for years after graduation.
2–2 We form many friendships in high school, some continue for years after graduation.
2–3 Some of the many friendships formed in high school continue for years after graduation.
2–4 In high school many friendships are formed and we continue some of these after graduation.

3–1 Frank Smith, who was elected next year's football captain only last week, was suspended yesterday for smoking on the school grounds by order of the superintendent.
3–2 Frank Smith, who only last week was elected next year's football captain, was suspended yesterday by order of the superintendent for smoking on the school grounds.
3–3 Having been elected next year's football captain only last week, smoking on the school grounds resulted in the suspension yesterday of Frank Smith by order of the superintendent.
3–4 Yesterday Frank Smith was suspended by order of the superintendent for smoking on the school grounds and after he was only elected football captain for next year last week.

4–1 The electric washing machine is one of the most useful and has saved more hard labor, than any other household appliance.
4–2 One of the most useful electrical instruments is the washing machine. Which has saved more labor than any household appliance.
4–3 Besides being one of the most useful electrical instruments, more hard labor has been saved by the washing machine than any other household appliance.
4–4 The washing machine, one of the most useful electrical instruments, has saved more hard labor than any other household appliance.

Go on to the next part.

PART II

DICTION

Time—10 minutes

Directions: In each of the following questions decide which one of the five numbered words or phrases would **most suitably** complete the sentence if inserted in the blank (——). Indicate your answer to each question by blackening the space on the answer sheet under the number of your choice.

1. In what year was the Mississippi River (——)?
   1–1 discovered
   1–2 invented
   1–3 encountered
   1–4 originated
   1–5 detected

2. The village is only two miles (——) from this little lake.
   2–1 away
   2–2 apart
   2–3 afar
   2–4 hence
   2–5 gone

3. Will the choral society be invited to (——) the Founders' Day program?
   3–1 enter into
   3–2 participate in
   3–3 be a part of
   3–4 partake of
   3–5 engage in

4. Please (——) me all those books with the red bindings.
   4–1 present
   4–2 hand
   4–3 reach
   4–4 transfer
   4–5 deliver

Go on to the next page.

After my visit I wrote the (——) thank-you note to my hostess.

5–1 customary
5–2 habitual
5–3 common
5–4 regular
5–5 established

While I was in the hospital, my greatest concern was the (——) of my daughter.

6–1 state
6–2 circumstance
6–3 destiny
6–4 fortune
6–5 welfare

Because these (——) are said to be warlike and cannibalistic, very little exploration has been done in their country.

7–1 folks
7–2 populations
7–3 people
7–4 creatures
7–5 human beings

The disease was traced to (——) of the source of the drinking water.

8–1 taint
8–2 pollution
8–3 ruin
8–4 defilement
8–5 deterioration

His father was locally (——) as a county committeeman.

9–1 distinct
9–2 momentous
9–3 noteworthy
9–4 prominent
9–5 predominant

How (——) was his report of the trial proceedings?

10–1 definite
10–2 accurate
10–3 steadfast
10–4 faithful
10–5 constant

My worst fears were (——); he had forgotten the tickets for the game.

11–1 ratified
11–2 validated
11–3 confirmed
11–4 corroborated
11–5 fortified

Once again our gracious (——) has proved that we need only mention our distress and he will come to our aid.

12–1 beneficiary
12–2 intercessor
12–3 advocate
12–4 proponent
12–5 benefactor

13. This novel is the best (——) of fine plot construction in English.

13–1 specimen
13–2 type
13–3 instance
13–4 standard
13–5 example

14. Have you seen the city architect's (——) for underground garages?

14–1 plan
14–2 scheme
14–3 expedient
14–4 device
14–5 artifice

15. The speaker (——) at his next attempt to quote from memory the last lines of Keats' *To a Nightingale*.

15–1 delayed
15–2 quivered
15–3 demurred
15–4 wavered
15–5 faltered

16. In the same letter he gave (——) statement as to the character of the First Continental Congress.

16–1 an artificial
16–2 a feigned
16–3 a disguised
16–4 a deceitful
16–5 a misleading

17. The boy has had, (——), no more than a grammar-school education.

17–1 visibly
17–2 manifestly
17–3 plainly
17–4 obviously
17–5 openly

18. Because of the (——) of both parties, the question was postponed for discussion at the fall conference.

18–1 mediocrity
18–2 indifference
18–3 negativism
18–4 neutrality
18–5 insignificance

19. (——) is the life of trade.

19–1 Emulation
19–2 Competition
19–3 Contention
19–4 Rivalry
19–5 Ambition

20. (——) of the plot of *Macbeth* reveals that the story was taken from Holinshed.

20–1 An analysis
20–2 An inquiry
20–3 An observation
20–4 A trial
20–5 A criticism

Go on to the next part.

PART III

ORGANIZATION

Time—15 minutes

irections: Read the following group of sentences and ecide what would be the **best** order in which to put the ntences to form a well-organized paragraph. Write e letters of the sentences **in this best order** in the right-and space on your answer sheet. Then answer each of e questions below the sentences by blackening the ace on the answer sheet under the number of your hoice.

uestions 1–3:

. The original birch-bark canoe has been vastly improved by a covering of canvas, which makes it safer in rough water, more durable in service, and practically as easy to carry.

B. These articles, with the exception of the canoe, are still used by white men, almost in their original form.

. The American Indian invented five important pieces of outdoor equipment—the tepee, the moccasin, the snowshoe, the toboggan, and the canoe.

1. If the three sentences above were re-arranged in the best order, sentence A would be placed
   1–1 first.
   1–2 directly after B.
   1–3 directly after C.

2. Sentence B would be placed
   2–1 first.
   2–2 directly after A.
   2–3 directly after C.

3. Sentence C would be placed
   3–1 first.
   3–2 directly after A.
   3–3 directly after B.

uestions 4–7:

A. Disgusted with a sentimental tale that he was reading to his wife, Cooper, who had previously written nothing whatever, threw it aside with the remark, "I can write a better novel than that."

B. Although the result of this first effort, *Precaution*, is little known today, Cooper's later novels were of such merit that they have been widely read for more than a century.

C. The story of how James Fenimore Cooper, early American novelist, became an author almost by chance is so fantastic as to be almost unbelievable.

D. When his wife challenged his statement, he went to work, resolving to imitate satirically the tone and character of an ordinary eighteenth-century English tale.

4. If the four sentences above were re-arranged in the best order, sentence A would be placed
   4–1 first.
   4–2 directly after B.
   4–3 directly after C.
   4–4 directly after D.

5. Sentence B would be placed
   5–1 first.
   5–2 directly after A.
   5–3 directly after C.
   5–4 directly after D.

6. Sentence C would be placed
   6–1 first.
   6–2 directly after A.
   6–3 directly after B.
   6–4 directly after D.

7. Sentence D would be placed
   7–1 first.
   7–2 directly after A.
   7–3 directly after B.
   7–4 directly after C.

Questions 8–12:

A. Then comes a year of the dreaded drought.

B. In one year the sheep and cattle population of the continent may thus be reduced by millions.

C. Then they fall dead.

D. Rainfall is scanty at best in the Australian "Outback," but in normal years it brings up a thin carpet of grass.

E. The grass withers, and the sheep and cattle grow weaker until they stand for hours unable to move.

8. If the five sentences above were re-arranged in the best order, sentence A would be placed
   8–1 first.
   8–2 directly after B.
   8–3 directly after C.
   8–4 directly after D.
   8–5 directly after E.

9. Sentence B would be placed
   9–1 first.
   9–2 directly after A.
   9–3 directly after C.
   9–4 directly after D.
   9–5 directly after E.

10. Sentence C would be placed
    10–1 first.
    10–2 directly after A.
    10–3 directly after B.
    10–4 directly after D.
    10–5 directly after E.

11. Sentence D would be placed
    11–1 first.
    11–2 directly after A.
    11–3 directly after B.
    11–4 directly after C.
    11–5 directly after E.

12. Sentence E would be placed
    12–1 first.
    12–2 directly after A.
    12–3 directly after B.
    12–4 directly after C.
    12–5 directly after D.

Go on to the next page.

Questions 13–17:

A. But the general framework and basic principles of our government have remained as they were set forth in this historic document a century and a half ago.

B. It was approved, or ratified, by conventions held in each of the states and henceforth became the basis of our government.

C. The framework of our government and the basis of our law are to be found in the Constitution of the United States.

D. Since its adoption, the Constitution has been changed several times by amendments in order to adapt it to our changing needs.

E. More than one hundred and fifty years ago this document was framed by the representatives of the thirteen states which then existed.

13. If the five sentences above were rearranged in the best order, sentence A would be placed
13–1 first.
13–2 directly after B.
13–3 directly after C.
13–4 directly after D.
13–5 directly after E.

14. Sentence B would be placed
14–1 first.
14–2 directly after A.
14–3 directly after C.
14–4 directly after D.
14–5 directly after E.

15. Sentence C would be placed
15–1 first.
15–2 directly after A.
15–3 directly after B.
15–4 directly after D.
15–5 directly after E.

16. Sentence D would be placed
16–1 first.
16–2 directly after A.
16–3 directly after B.
16–4 directly after C.
16–5 directly after E.

17. Sentence E would be placed
17–1 first.
17–2 directly after A.
17–3 directly after B.
17–4 directly after C.
17–5 directly after D.

Questions 18–22:

A. It is based on a thousand-mile journey with an average car, average roads, and an average driver.

B. When the speed goes up to fifty-five miles an hour, the saving is 10.4 hours for the whole journey, but the cost is $1.20 per hour saved, or $12.45 for the journey.

C. It is surprising how rapidly automobile costs of several sorts increase with speed.

D. It shows that for this thousand miles only 6.4 hours are saved by increasing car speed from thirty-five to forty-five miles an hour, but that the cost is 65 cents for each hour saved, or $4.15 for the 1000 miles.

E. A nationally known insurance company has made an interesting study of this factor in relation to time saved.

18. If the five sentences above were rearranged in the best order, sentence A would be placed
18–1 first.
18–2 directly after B.
18–3 directly after C.
18–4 directly after D.
18–5 directly after E.

19. Sentence B would be placed
19–1 first.
19–2 directly after A.
19–3 directly after C.
19–4 directly after D.
19–5 directly after E.

20. Sentence C would be placed
20–1 first.
20–2 directly after A.
20–3 directly after B.
20–4 directly after D.
20–5 directly after E.

21. Sentence D would be placed
21–1 first.
21–2 directly after A.
21–3 directly after B.
21–4 directly after C.
21–5 directly after E.

22. Sentence E would be placed
22–1 first.
22–2 directly after A.
22–3 directly after B.
22–4 directly after C.
22–5 directly after D.

Go on to the next page.

estions 23–29:

rections: Questions 23–29 are based on the outline
ow in which certain headings have been omitted.
ese omissions are indicated by the numbers 23, 24, etc.
st read the outline; then answer each of the questions
blackening the space on the answer sheet under the
mber of your choice.

How to Make Jelly

. Preliminary steps

A. (—23—)
1. Fruit which jells easily
2. Fruit not at peak ripeness

B. Obtaining other ingredients
1. (—24—)
2. Commercial pectin, if needed

C. Assembling equipment
1. (—25—)
a. For cooking fruit
b. For cooking juice
2. Measuring cups, ladles, and jelly bags
3. Paraffin, jars, and lids

. Preparing fruit for cooking
A. (—26—)
B. Quartering, coring, and slicing fruit

. Cooking fruit
A. Bringing fruit to a boil
B. Cooking gently until fruit is soft

. (—27—)
A. Pouring fruit into jelly bag
B. Draining juice off cooked fruit into bowl
C. Straining juice again through flannel jelly bag for clear color

. Cooking juice
A. Measuring amount of juice
B. Adding correct amount of sugar
C. Bringing jelly to boil
D. (—28—)

. Final steps
A. Pouring jelly into jars
B. Allowing jelly to cool
C. Sealing jars with paraffin and lids
D. (—29—)

23. In filling in the incomplete outline above, which one of the following should you use for A under heading I?
23–1 Varieties of fruit available
23–2 Selecting fruit
23–3 Amount of fruit to use
23–4 Equipment needed
23–5 Nutritional values

24. Which one of the following should you use for B–1 under heading I?
24–1 Flannel jelly bag most satisfactory
24–2 How to choose fruit
24–3 Sugar
24–4 Finding a good recipe
24–5 Different kinds of jelly

25. Which one of the following should you use for C–1 under heading I?
25–1 Difference between jelly and jam
25–2 Price of sugar
25–3 Necessity for clean utensils
25–4 Danger of overcooking
25–5 Saucepans

26. Which one of the following should you use for A under heading II?
26–1 Open-kettle method
26–2 Crab-apple jelly
26–3 Washing fruit
26–4 Length of cooking time
26–5 Artificial coloring sometimes used

27. Which one of the following should you use for heading IV?
27–1 Use of pressure cooker
27–2 Preparing juice
27–3 Preparing jelly bag
27–4 Hanging jelly bag over bowl
27–5 Concord grapes preferable to other varieties

28. Which one of the following should you use for D under heading V?
28–1 Testing with "jelly drop" from spoon
28–2 Using one cup of sugar to one cup of juice
28–3 Thermometer at 220° F
28–4 Pouring paraffin on top of jelly
28–5 Popular flavors

29. Which one of the following should you use for D under heading VI?
29–1 Temperature of storage room
29–2 Stirring to dissolve sugar
29–3 Commercial versus homemade jellies
29–4 Labeling jars
29–5 Making jelly sandwiches

If you finish before time is called, check your work on this part of this test. Do not go back to either previous test.

EDUCATIONAL TESTING SERVICE

COOPERATIVE MATHEMATICS TEST

FOR GRADES 7, 8, and 9

RM Y

TEST NUMBER 515-84-1

by

BERNICE ORSHANSKY, Teachers College, Columbia University

with the editorial assistance of

PAUL J. BURKE, Columbia University; ALICE H. DARNELL, Germantown Friends School;
ROSE E. LUTZ, Radnor High School; and AGATHA TOWNSEND, Educational Records Bureau

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the mathematics course you are now taking (for example, First-year algebra)...............................

....

or..

Directions: Do not turn this page until the examiner tells you to do so. This examination consists of
rts and requires 80 minutes of working time. The directions for each part are printed at the beginning
art. Read them carefully and proceed at once to answer the questions. DO NOT SPEND TOO MUCH
ON ANY ONE ITEM. ANSWER THE EASIER QUESTIONS FIRST; then return to the harder
you have time. There is a time limit for each part. *You are not expected to answer all the questions in*
t in the time limit. If you have not finished a part when the time is up, stop work on that part and proceed
to the next part. If you finish a part before the time is up, go on to the next part. If you finish the
t before the time is up, you may go back and work on any part. No questions may be asked after the
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y answer questions even when you are not perfectly sure that your answers are correct, but you should
ild guessing, since wrong answers will result in a subtraction from the number of your correct answers.

Part	Minutes	Scaled Score	Percentile
I Skills	30		
II Facts, Terms, and Concepts	10		
III Applications	30		
IV Appreciation	10		
Total	80		

COOPERATIVE TEST DIVISION
EDUCATIONAL TESTING SERVICE
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PART I

SKILLS

(30 minutes)

Directions: Each problem below is followed by five choices, one of which is the correct answer. By wo problem, find the correct answer and put its **number** in the parentheses at the right of the problem. Th done correctly.

Sample:

0. Add:
361
123
484

0–1 438
0–2 243
0–3 484
0–4 264
0–5 572 . . . . . . 0(*3*)

---

1. Subtract:
27.53
16.69

1–1 10.84
1–2 10.94
1–3 11.16
1–4 11.26
1–5 11.84 . . . . 1(   )

2. Multiply:
767
304

2–1 258,638
2–2 233,168
2–3 230,948
2–4 26,078
2–5 5,369 . . . 2(   )

3. Multiply: $\frac{3}{7} \times \frac{6}{7}$

3–1 $\frac{18}{7}$
3–2 2
3–3 $\frac{1}{2}$
3–4 $\frac{18}{49}$
3–5 $\frac{7}{18}$ . . . . 3(   )

4. The sum of the three numbers 1,125, 718, and 1,090 is

4–1 1,952
4–2 2,823
4–3 2,933
4–4 3,933
4–5 9,395 . . . . 4(   )

5. Multiply: $6\frac{1}{3} \times 3$

5–1 $2\frac{1}{9}$
5–2 6
5–3 $6\frac{1}{9}$
5–4 $18\frac{1}{3}$
5–5 19 . . . . 5(   )

6. If $x + 3 = 10$, then x equals

6–1 $\frac{3}{10}$
6–2 $3\frac{1}{3}$
6–3 7
6–4 13
6–5 30 6

7. $\frac{72}{5}$ is the same as

7–1 $\frac{7}{5} + \frac{2}{5}$
7–2 $\frac{1}{72} \times 5$
7–3 $14\frac{2}{5}$
7–4 $71\frac{1}{5}$
7–5 $7 + \frac{2}{5}$ 7

8. Add: 36.9 + 7.04

8–1 1.073
8–2 10.73
8–3 43.13
8–4 43.94
8–5 44.3 8

9. Subtract: $3\frac{1}{4} - \frac{1}{3}$

9–1 $\frac{3}{4}$
9–2 $2\frac{1}{12}$
9–3 $2\frac{11}{12}$
9–4 $3\frac{1}{12}$
9–5 $3\frac{1}{7}$ 9

10. 8.63 multiplied by .34 is equal to

10–1 2.9342
10–2 29.342
10–3 60.41
10–4 293.42
10–5 6,041 10

Go on to the xt

6,359 is divided by 72, the *remainder*

23
49
59
65
67 . . . . 11(   )

many *tenths* does $\frac{3}{5}$ plus $\frac{1}{2}$ equal?

15 tenths
11 tenths
3 tenths
6 tenths
7 tenths . . . . 12(   )

ply: 10,000 × 6.894

68,940
16,894
6,894
.06894
.00006894 . . . . 13(   )

f 15 is

.5
.2
4.5
20
5 . . . . 14(   )

divided by .5 is equal to

.0923
.923
9.23
92.3
923 . . . . 15(   )

$\frac{1}{6}+\frac{1}{3}$

$\frac{1}{18}$
$\frac{1}{9}$
$\frac{2}{9}$
$\frac{1}{2}$
$\frac{2}{3}$ . . . . 16(   )

17. $1\frac{1}{6}$ divided by $\frac{1}{2}$ equals

17–1 $1\frac{1}{3}$
17–2 $1\frac{1}{12}$
17–3 $2\frac{1}{3}$
17–4 $2\frac{1}{6}$
17–5 $\frac{3}{7}$ . . . . 17(   )

18. What is the *least common denominator* of the fractions $\frac{3}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{1}{3}$?

18–1 8
18–2 12
18–3 16
18–4 18
18–5 24 . . . . 18(   )

19. The sum, in decimal form, of the values $\frac{1}{4}$, .5, .6, and $\frac{1}{5}$ is

19–1 .1145
19–2 .38
19–3 .56
19–4 1.1145
19–5 1.55 . . . . 19(   )

20. When 158,067 is divided by 63, the result is a 4-digit number. What is the *third* digit of this number?

20–1 0
20–2 9
20–3 3
20–4 7
20–5 5 . . . . 20(   )

21. 6 plus 12 equals 8 plus

21–1 18
21–2 16
21–3 14
21–4 4
21–5 10 . . . . 21(   )

22. How many *twelfths* does $2\frac{1}{4}$ equal?

22–1 28 twelfths
22–2 27 twelfths
22–3 25 twelfths
22–4 16 twelfths
22–5 15 twelfths . . . . 22(   )

Go on to the next page.

23. Expressed in percentage form, .3 equals
23–1 30%
23–2 3%
23–3 .3%
23–4 .03%
23–5 .003% . . . . 23( )

24. $\frac{1}{4}$% is equal to the fraction
24–1 $\frac{1}{25}$
24–2 $\frac{4}{25}$
24–3 $\frac{1}{4}$
24–4 $\frac{1}{40}$
24–5 $\frac{1}{400}$ . . . . 24( )

25. How many degrees are there in **one-fourth** of a right angle?
25–1 $22\frac{1}{2}$
25–2 25
25–3 36
25–4 40
25–5 45 . . . . 25( )

26. 32 is what per cent of 72?
26–1 $22\frac{1}{2}$%
26–2 25%
26–3 40%
26–4 $44\frac{4}{9}$%
26–5 $44\frac{1}{2}$% . . . . 26( )

27. 5 divided by $\frac{1}{5}$ equals
27–1 1
27–2 0
27–3 $\frac{1}{25}$
27–4 25
27–5 5 . . . . 27( )

28. If a = b, then 2a − 2b is equal to
28–1 1
28–2 2
28–3 0
28–4 4
28–5 2ab . . . . 28( )

29. If $r = \frac{2s}{n} - t$, what does r equal wh
s = 35, n = 5, and t = 8?
29–1 −1
29–2 6
29–3 $12\frac{2}{5}$
29–4 30
29–5 39 . . . .

30. If s = t + 5, what does t equal whe
s = 12?
30–1 $\frac{1}{60}$
30–2 $2\frac{2}{5}$
30–3 6
30–4 7
30–5 17 . . . .

31. $\frac{5}{16}$, expressed as a decimal, equals
31–1 31.25
31–2 3.20
31–3 3.333
31–4 .320
31–5 .3125 . . . .

32. What fraction is equivalent to 8%?
32–1 $\frac{1}{800}$
32–2 $\frac{1}{80}$
32–3 $\frac{2}{25}$
32–4 $\frac{4}{25}$
32–5 $\frac{4}{5}$ . . . .

33. In decimal form, 5% of $\frac{1}{2}$ is
33–1 .01
33–2 .025
33–3 .1
33–4 .25
33–5 2.5 . . . .

34. 36 is 12% of what number?
34–1 4.32
34–2 30
34–3 43.2
34–4 300
34–5 432 . . . .

Go on to the n

atio of **16** to **84** is the same as the of **4** to

7
21
72
96
336 . . . . 35(   )

expressed as a decimal, equals

.0175
.175
1.0075
1.075
1.75 . . . . 36(   )

hat number is **115**?

46
50
69
$191\frac{2}{3}$
575 . . . . 37(   )

quation $\frac{2}{5}x = x + 3$, cleared of fractions may be written as

$2x - 5 = x + 3$
$2x = 5x + 8$
$2x = x + 15$
$2x = 5x + 3$
$2x = 5x + 15$ . . . . 38(   )

quals

$\frac{1}{8}$
2
8
4
32 . . . . 39(   )

um of **12** and **−75** is

−87
−63
−37
87
63 . . . . 40(   )

41. What is the *volume* of a cube whose side is 6 inches?

41–1 9 cubic inches
41–2 18 cubic inches
41–3 36 cubic inches
41–4 108 cubic inches
41–5 216 cubic inches . . . . 41(   )

42. If $v = q + t$, what is the value of q when $v = 10$ and $t = 14$?

42–1 1
42–2 $\frac{2}{5}$
42–3 $\frac{5}{7}$
42–4 −4
42–5 24 . . . . 42(   )

43. What is the *altitude* of a triangle with base 20 and area 50?

43–1 40
43–2 30
43–3 25
43–4 15
43–5 5 . . . . 43(   )

44. What does $2x^3$ equal when $x = 2$?

44–1 64
44–2 16
44–3 12
44–4 4
44–5 10 . . . . 44(   )

45. The value of x which satisfies the set of equations $\left\{\begin{matrix} 2x + y = 10 \\ x + y = 7 \end{matrix}\right\}$ is

45–1 1
45–2 $1\frac{1}{2}$
45–3 3
45–4 $5\frac{1}{3}$
45–5 $\frac{2}{3}$ . . . . 45(   )

Go on to the next part.

Number wrong	0 2	3 6	7 10	11 14	15 18	19 22	23 26	27 30	31 34	35 +
Amount to be subtracted	0	1	2	3	4	5	6	7	8	9

Number right__________

Subtract__________
(See table at left.)

Raw Score on Part I = Difference__________

Scaled Score__________
(See table on key.)

PART II

FACTS, TERMS, AND CONCEPTS

(10 minutes)

Directions: Select the answer which most correctly completes the statement or answers the question and put in the parentheses at the right.

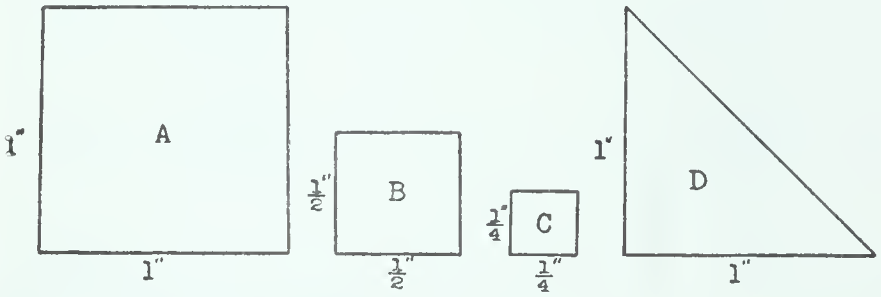
1. If a package weighs **1 pound** and **4 ounces**, what is its weight in *ounces*?
1–1 16 ounces
1–2 8 ounces
1–3 12 ounces
1–4 4 ounces
1–5 20 ounces . . . . 1(   )

2. Mrs. Jones receives her salary and plans how much she may spend for each different purpose. Her plan is known as
2–1 an allotment.
2–2 an allowance.
2–3 a budget.
2–4 a balance sheet.
2–5 a salary lease. . . . . 2(   )

3. A *discount* means the same as a
3–1 loss.
3–2 reduction.
3–3 profit.
3–4 commission.
3–5 premium. . . . . 3(   )

4. How many *inches* are there in $\frac{1}{2}$ yard?
4–1 6
4–2 12
4–3 18
4–4 24
4–5 36 . . . . 4(   )

Questions **5** and **6** are based on the following figures.



5. Which of the figures represents **one square inch**?
5–1 Only A
5–2 Only B
5–3 Only C
5–4 Only D
5–5 More than one of the figures . . . . 5(   )

6. Which of the figures has a *perimeter* of **one inch**?
6–1 Only A
6–2 Only B
6–3 Only C
6–4 Only D
6–5 More than one of the figures . . . . 6(   )

7. Which of the following is a unit in th
metric system?
7–1 Ounce
7–2 Centimeter
7–3 Yard
7–4 Bushel
7–5 Gross . . . .

8. If Mr. Smith does not make his *mortga*
payments, he will probably lose which o
of the following?
8–1 Insurance
8–2 Interest
8–3 Banking rights
8–4 Real estate
8–5 Assessment taxes . . . .

9. If an article costing a dealer **$10** is sold f
$25, and the salesman receives a commi
sion of **$2**, the dealer's *net profit* on t
article is
9–1 **$12**
9–2 **$13**
9–3 **$15**
9–4 **$17**
9–5 **$23** . . . .

10. Any *formula* may be expressed in the for
of
10–1 a binomial.
10–2 an equation.
10–3 a radical.
10–4 a distribution.
10–5 a per cent. . . . .

11. What does **10x** equal when **x** equals **5**?
11–1 50
11–2 2
11–3 15
11–4 105
11–5 5 . . . .

12. If the *numerator* of $\frac{5}{7}$ is increased by **1**, th
result is
12–1 $\frac{5}{71}$
12–2 $\frac{5}{8}$
12–3 $\frac{6}{7}$
12–4 $1\frac{5}{7}$
12–5 $\frac{51}{7}$ . . . .

Go on to the

r. X is charged by his bank for not ng the proper bank balance, what kind count does he probably have?

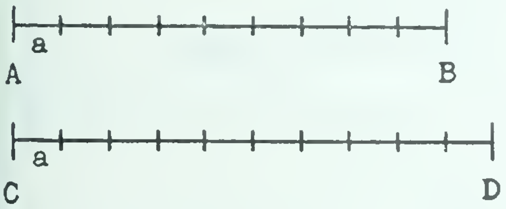
Thrift account
Checking account
Savings account
Joint account
Christmas club account . . . . . 13( )

many **sixteenths** of an inch make up hes?

8
2
16
4
32 . . . . 14( )

ailer deducts from his weekly business ngs a certain amount for such things as breakage, and the cost of running the Such expenses are known as

capital.
surplus.
depreciation.
discounts.
overhead. . . . . 15( )



l units have been marked off along wo lines shown above. If line **AB** sents a distance of **3 miles**, what dis- does line **CD** represent?

$3\frac{1}{3}$ miles
$3\frac{1}{9}$ miles
$3\frac{1}{10}$ miles
4 miles
3a miles . . . . 16( )

e following, which information might, elf, be best represented on a graph?

The number of students making no mistakes on a certain arithmetic test
The average speed of a boat on a certain trip
The student receiving the highest grade in the final examination in English
The hour of a particular day when the temperature was highest
The number of absences in a class during each month of the year . . 17( )

18. Two angles of a triangle are each **50 degrees**. The third angle is

18–1 50 degrees.
18–2 25 degrees.
18–3 80 degrees.
18–4 40 degrees.
18–5 10 degrees. . . . . 18( )

19. A merchant pays a tax on goods imported into the United States from another country. This tax is known as a

19–1 duty.
19–2 luxury tax.
19–3 sales tax.
19–4 smuggling tax.
19–5 transfer tax. . . . . 19( )

20. Which of the following numbers is **not** a *factor* of the number **225**?

20–1 22
20–2 15
20–3 3
20–4 9
20–5 5 . . . . 20( )

21. If the radius of a circle is **6 inches**, half of the diameter of the circle is

21–1 18 inches.
21–2 9 inches.
21–3 3 inches.
21–4 12 inches.
21–5 6 inches. . . . . 21( )

22. The term *ratio* is most closely related to the term

22–1 digit.
22–2 formula.
22–3 reduction.
22–4 root.
22–5 quotient. . . . . 22( )

23. *Sum* is to *plus* as *difference* is to

23–1 *divide.*
23–2 *minus.*
23–3 *subtract.*
23–4 *remainder.*
23–5 *quotient.* . . . . 23( )

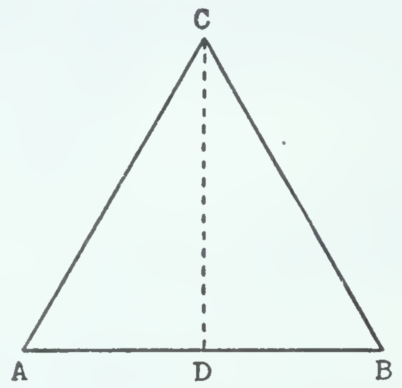
24. If **60 coins** consist of dimes and nickels, and there are **n nickels**, how many *dimes* are there?

24–1 60 – .10n
24–2 60 – .05n
24–3 60 – 10n
24–4 60 – 5n
24–5 60 – n . . . . 24( )

Go on to the next page.

25. Payment voted on stock of a corporation is called

25–1 differential.
25–2 interest.
25–3 commission.
25–4 dividends.
25–5 collateral. . . . . 25(   )



26. Which one of the following descriptions does **not** apply to the line **CD** in the triangle above?

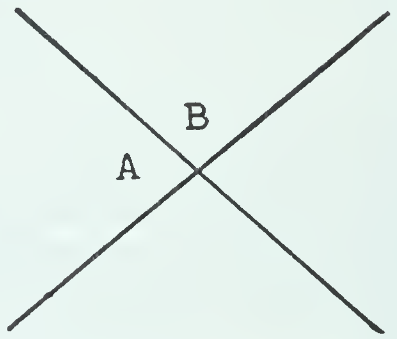
26–1 A median
26–2 A diagonal
26–3 An altitude
26–4 An angle bisector
26–5 A perpendicular bisector . . . . . 26(   )

27. Nick borrowed **$30** from his father, and agreed to pay **6% interest** on it. What was the *principal* of Nick's loan?

27–1 **$30**
27–2 **$30.06**
27–3 **$18**
27–4 **$1.80**
27–5 **$5** . . . . 27(   )

28. A boat traveled **t miles** the first hour, **miles** the second hour, and **t miles** t third hour. What was its *average* speed

28–1 $\frac{t}{3}$ **miles per hour**
28–2 $\frac{t}{2}$ **miles per hour**
28–3 $\frac{t+3}{2}$ **miles per hour**
28–4 **t miles per hour**
28–5 **3t miles per hour** . . . .



29. In the figure shown above, angles **A** and are formed by the two intersecting straig lines. From the information given, angl **A** and **B** are known to be

29–1 vertical angles.
29–2 acute angles.
29–3 right angles.
29–4 obtuse angles.
29–5 supplementary angles. . . . . .

30. The term *circumference* is most closel related to the term

30–1 area.
30–2 angle.
30–3 volume.
30–4 perimeter.
30–5 range. . . . .

Go on to the

Number wrong	0 | 2	3 | 6	7 | 10	11 | 14	15 | 18	19 | 22	23 | +
Amount to be subtracted	0	1	2	3	4	5	6

Number right____

Subtract____
(See table at left.)

Raw Score on Part II = Difference

Scaled Score____
(See table on key.)

PART III

APPLICATIONS

(30 minutes)

: By working each problem below, find the correct answer and put its **number** in the parentheses at the right.

ranges cost **$.25**, how many oranges e bought for **$1**?

12
15
18
24
30 . . . . 1(   )

many hours will it take a car traveling iles **per hour** to cover a distance of iles?

24
16
$10\frac{1}{2}$
8
5 . . . . 2(   )

rs. X has **$3**, how many boxes of im- d sardines costing **$.45** a box can she

6
7
13
14
15 . . . . 3(   )

Abbott earns **$1 an hour** for the first ours of work each week, and is paid at ate of **$1.50 an hour** for any additional worked. How much does he earn if orks $42\frac{1}{2}$ **hours** in one week?

$42.50
$43.75
$44
$45
$47.50 . . . . 4(   )

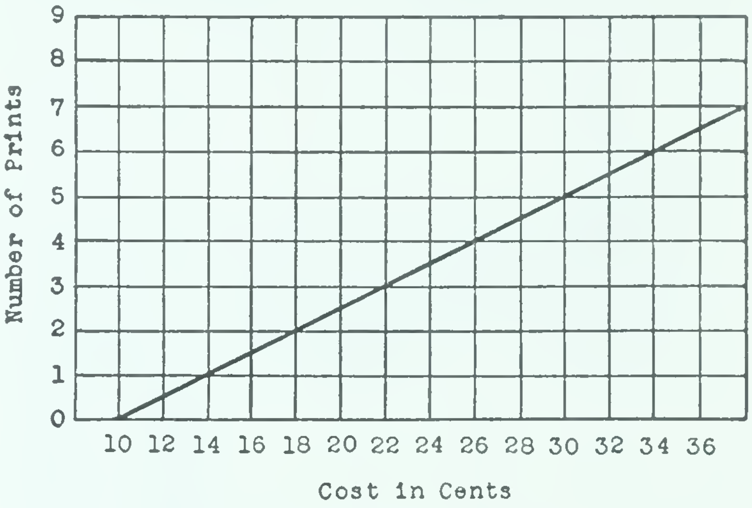
t is the weight of the contents of a package made up of four packages hing $3\frac{1}{2}$ **pounds**, $5\frac{2}{5}$ **pounds**, **1 pound**, $2\frac{1}{10}$ **pounds**, respectively?

$11\frac{1}{10}$ pounds
$11\frac{2}{5}$ pounds
$11\frac{4}{5}$ pounds
12 pounds
$12\frac{1}{5}$ pounds . . . . 5(   )

6. A family spent an average of **$46 per month** on food for a **2-month** period. If food cost them $39 one of those months, how much did they spend on food the other month?

6–1 $32
6–2 $42.50
6–3 $49.50
6–4 $53
6–5 $60 . . . . 6(   )

Graph Showing Cost for Developing and Printing a Roll of Film



7. According to the graph above, what is the charge for developing a roll of film if **no prints** are made?

7–1 0 cents (no charge)
7–2 10 cents
7–3 14 cents
7–4 34 cents
7–5 5 cents . . . . 7(   )

8. How much more does it cost for **4 prints** than for **3 prints**?

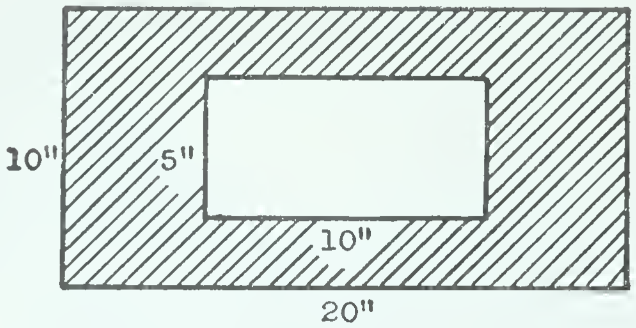
8–1 1 cent
8–2 2 cents
8–3 24 cents
8–4 4 cents
8–5 26 cents . . . . 8(   )

9. If a roll of film is developed, and the charge is **38 cents**, how many prints have been made?

9–1 10
9–2 9
9–3 8
9–4 7
9–5 5 . . . . 9(   )

- - - - - - - - - - -

Go on to the next page.



10. What is the *area* of the shaded portion in the figure shown above?

10–1 **25 square inches**
10–2 **30 square inches**
10–3 **50 square inches**
10–4 **100 square inches**
10–5 **150 square inches** . . . . 10(   )

11. On a certain map, a distance of **2 feet** is represented by $\frac{1}{4}$ **inch.** How many inches on the map would represent **5 feet**?

11–1 $\frac{1}{20}$
11–2 $\frac{1}{10}$
11–3 $\frac{5}{8}$
11–4 $\frac{3}{4}$
11–5 $1\frac{1}{4}$ . . . . 11(   )

12. A baseball team won **54 games** and lost **46 games.** What per cent of the games played did the team *win*?

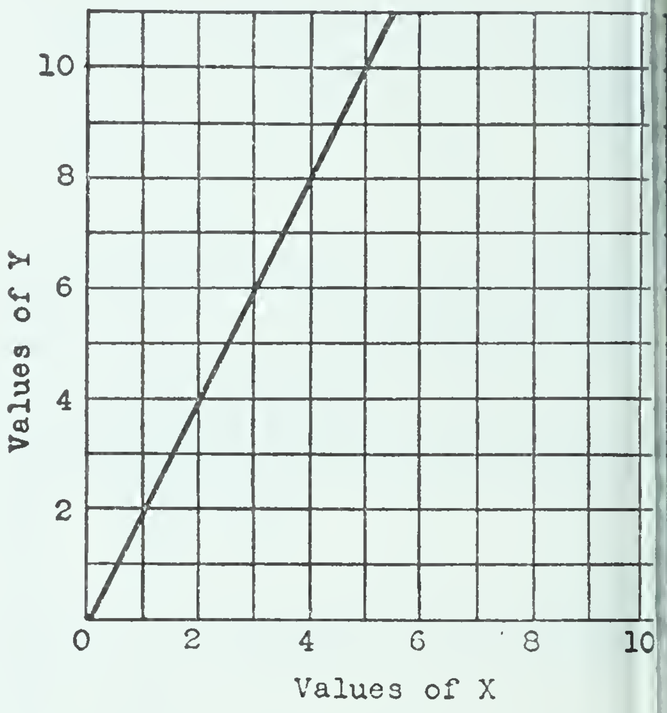
12–1 **54%**
12–2 **58%**
12–3 **80%**
12–4 **83$\frac{1}{3}$%**
12–5 **92%** . . . . 12(   )

13. What fractional part of $\frac{1}{2}$ **hour** is **12 minutes?**

13–1 $\frac{1}{24}$
13–2 $\frac{1}{6}$
13–3 $\frac{1}{5}$
13–4 $\frac{2}{5}$
13–5 $\frac{3}{5}$ . . . . 13(   )

14. If it takes a boat **5 hours** to travel a di tance of **m + 1 miles,** how long will it tak for the boat to travel **one mile**?

14–1 **4 hours**
14–2 $\frac{m}{5}$ **hours**
14–3 $\frac{5}{m + 1}$ **hours**
14–4 $\frac{5}{m}$ **hours**
14–5 $\frac{m + 1}{5}$ **hours** . . . . (



15. On the graph above, what does x equal when y is 3?

15–1 **1**
15–2 **0**
15–3 **3**
15–4 **1.5**
15–5 **2.5** . . . . (

16. What will y equal when **x** is **6?**

16–1 **11**
16–2 **12**
16–3 **3**
16–4 **5.5**
16–5 **6** . . . . (

- - - - - - - - - -

17. A man earned **$210 per month,** out of which **18%** was deducted for income tax. If he received a **10% increase** in salary, and the deduction rate remained the same, how much were his *new* monthly deductions?

17–1 **$18**
17–2 **$21**
17–3 **$23.10**
17–4 **$37.80**
17–5 **$41.58** . . . .

Go on to the ne pa

epartment store ran a sale, marking the
e of every article down 30%. What
the *sale price* of an article originally
ked $15?

1 $14.70
2 $12
3 $10.50
4 $10
5 $5 . . . . 18( )

longitude of City A is 10 degrees East,
le the longitude of City B is 44 degrees
st. How far apart are A and B in de-
s of longitude?

1 30 degrees
2 34 degrees
3 −34 degrees
4 44 degrees
5 54 degrees . . . . 19( )

he side of a square is $x + 1$, the *perim-*
of the square is

1 $2x + 2$
2 $2x + 1$
3 $4x + 4$
4 $4x + 1$
5 $x^2 + 1$ . . . . 20( )

cost C, in dollars, of t thousands of
gles at $7 per thousand is given by the
nula

1 $C = 7 + t$
2 $C = 7t$
3 $C = \frac{7}{t}$
4 $C = \frac{1000t}{7}$
5 $C = \frac{1000}{7t}$ . . . . 21( )

e sum of x and another number is 15.
at is the other number?

1 $x - 15$
2 $15 + x$
3 $15 - x$
4 $\frac{x}{15}$
5 $\frac{15}{x}$ . . . . 22( )

23. John is now twice as old as his brother. If John will be 16 years old two years from now, how old will his brother be two years from now?

23–1 10 years
23–2 9 years
23–3 8 years
23–4 7 years
23–5 6 years . . . . 23( )

24. If a man spends 12% of his salary on bonds, and buys a $37.50 bond each month, what is his monthly salary?

24–1 $312.50
24–2 $312.60
24–3 $350
24–4 $376.20
24–5 $450 . . . . 24( )

25. If the income tax rate in a certain state is 2% on the first $1,000, $2\frac{1}{2}\%$ on the second $1,000, and 3% on the next $1,000, what is the income tax on $3,000?

25–1 $75
25–2 $80
25–3 $90
25–4 $135
25–5 $225 . . . . 25( )

26. A certain solder is made of tin and lead. How many pounds of tin are needed to make 60 pounds of solder, if there are 2 pounds of tin in every 5 pounds of the solder?

26–1 10 pounds
26–2 12 pounds
26–3 20 pounds
26–4 24 pounds
26–5 40 pounds . . . . 26( )

27. The sides of a triangle are in the ratio of 2 to 3 to 4, and the perimeter of the triangle is 27. The longest side of the triangle is

27–1 9
27–2 12
27–3 18
27–4 4
27–5 7 . . . . 27( )

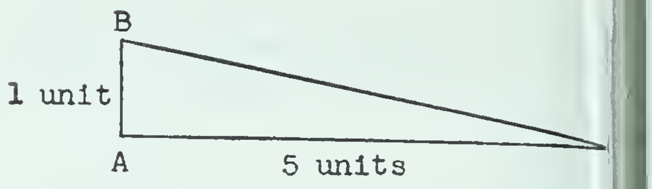
Go on to the next page.

28. The members of an organization were asked for a donation of **$1** each. **Sixty per cent** contributed, making **$72** collected in all. How many members did **not** contribute?

28–1 48
28–2 43
28–3 40
28–4 29
28–5 12 . . . . 28( )

29. What is the *area* of a right triangle with sides **3**, **4**, and **5 inches**, respectively?

29–1 6 square inches
29–2 7 square inches
29–3 $7\frac{1}{2}$ square inches
29–4 10 square inches
29–5 12 square inches . . . . 29( )



30. In the figure shown above, angle **A** is
right angle. What is the distance from
to **C**?

30–1 $\sqrt{6}$ units
30–2 $\sqrt{26}$ units
30–3 6 units
30–4 4 units
30–5 24 units . . . .

Go on to the

Number wrong	0–2	3–6	7–10	11–14	15–18	19–22	23+
Amount to be subtracted	0	1	2	3	4	5	6

Number right__

Subtract__
(See table at left.)

Raw Score on Part III = Difference__

Scaled Score__
(See table on key.)

PART IV

APPRECIATION

(10 minutes)

s: Select the answer which most correctly completes the statement or answers the question and put its **number**
rentheses at the right.

n hundred fifty is the same as
750
1,250
7,050
70,050
700,050 . . . . 1( )

Roman numeral **XIV** equals
14
114
115
1,014
1,015 . . . . 2( )

number **51,094** *correct to the nearest*
sand equals
51.094
1,094
5,000
5,109
51,000 . . . . 3( )

t part of a year is one week?
$\frac{1}{48}$
$\frac{7}{48}$
$\frac{1}{52}$
$\frac{7}{52}$
$\frac{1}{84}$ . . . . 4( )

t of a problem reads, "How much inter-
compounded quarterly does a bank pay
$300 kept in a savings account for one
r?" What, if any, additional informa-
must be known in order to solve the
blem?
No additional information
When the money will be withdrawn
The purpose of the savings
The age of the person whose money
it is
The interest rate . . . . 5( )

6. 16,059 is read as
6–1 sixteen hundred fifty-nine.
6–2 sixteen hundred fifty-nine thousand.
6–3 sixteen thousand fifty-nine.
6–4 sixteen thousand fifty-nine hundred.
6–5 one thousand six hundred fifty-nine. . 6( )

7. The hands of a clock form a right angle at
7–1 12:00 o'clock.
7–2 1:30 o'clock.
7–3 3:00 o'clock.
7–4 3:15 o'clock.
7–5 6:00 o'clock. . . . . 7( )

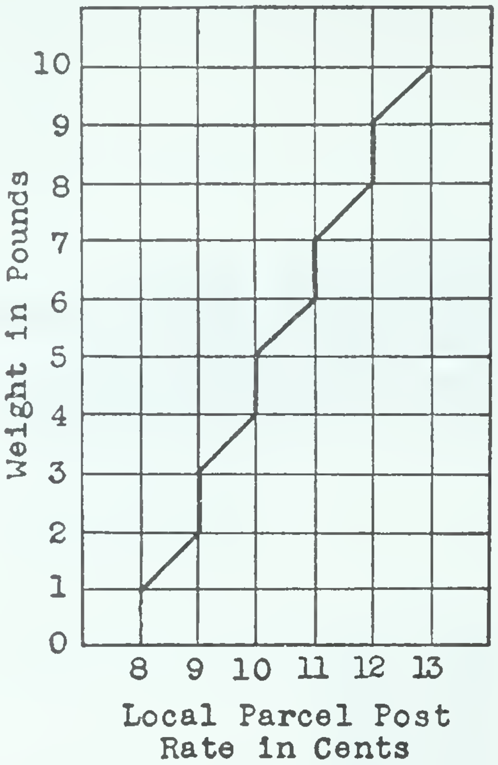
8. On a true-false test, a student answered 58 questions as "true" and 64 questions as "false." How many questions did he omit?
8–1 None
8–2 6
8–3 3
8–4 8
8–5 The number cannot be determined from the information given. . . . . . 8( )

9. For inserting a want ad, a certain newspaper charges **18 cents** for each line or part of a line, and requires a minimum of **3 lines**; **5 words** make up the first line, and **6 words** make up each additional line. What will be the charge for a **25-word** ad?
9–1 72 cents
9–2 78 cents
9–3 81 cents
9–4 84 cents
9–5 90 cents . . . . 9( )

10. 3^5 means the same as
10–1 3×5
10–2 $3 \times 3 \times 3 \times 3 \times 3$
10–3 $3 + 5 \times 3$
10–4 $5 \times 5 \times 5$
10–5 $\frac{3}{5}$ . . . . 10( )

Go on to the next page.

Graph Showing Local Parcel Post Rates for Packages Weighing from 1 to 10 Pounds



11. According to the graph above, what is the local parcel post rate on $8\frac{1}{2}$ pounds?

11–1 13 cents
11–2 12 cents
11–3 10 cents
11–4 9 cents
11–5 It cannot be determined from the graph. . . . . 11( )

12. How much, if anything, is saved by sending one **6-pound** package instead of two **3-pound** packages?

12–1 Nothing is saved.
12–2 2 cents
12–3 7 cents
12–4 9 cents
12–5 5 cents . . . . 12( )

13. If the rate increases in a similar manner for heavier packages, what will it cost to send an **11-pound** package?

13–1 7 cents
13–2 11 cents
13–3 12 cents
13–4 13 cents
13–5 14 cents . . . . 13( )

14. Which of the following decimals represents the *largest* quantity?

14–1 .1
14–2 .20
14–3 .037
14–4 .04
14–5 .009 . . . . 14( )

15. Which of the following would be the *poorest* type of graph to choose for showing that people with higher incomes pay higher rents?

15–1 Bar graph
15–2 Straight-line graph
15–3 Broken-line graph
15–4 Circle graph
15–5 Pictograph . . . .

16. If the numerator and denominator of a fraction are each multiplied by **2**, the value of the fraction is

16–1 unchanged.
16–2 increased by **2**.
16–3 multiplied by **2**.
16–4 multiplied by **4**.
16–5 decreased. 1

17. Which of the following is the branch of mathematics for which a person making surveys in the field of public health will have the greatest use?

17–1 Trigonometry
17–2 Geometry
17–3 Statistics
17–4 Algebra
17–5 The metric system 1

18. Which of the following fractions is most nearly equal to **12.4%**?

18–1 $\frac{1}{1225}$
18–2 $\frac{1}{124}$
18–3 $\frac{1}{24}$
18–4 $\frac{1}{12}$
18–5 $\frac{1}{8}$ 1

19. **356** people vote to choose **1** of **5** candidates. The candidate who has more votes than any other is the winner. What is the *smallest* number of votes that could make a candidate a winner?

19–1 179
19–2 178
19–3 89
19–4 72
19–5 71 19

Go on to the next

of the following has **no** *volume*?
Cylinder
Cone
Square
Cup
Rectangular box . . . . 20(   )

gle of 32 degrees *minus* 6 minutes is
me as an angle of
31 degrees *plus* 54 seconds.
31 degrees *plus* 54 minutes.
32 degrees *minus* 66 seconds.
32 degrees *minus* 54 seconds.
32 degrees *plus* 6 seconds. . . . . 21(   )

uals are added to equals, the results are
” Which of the following is the best
le of that statement?
$1 + 8 = 3 + 6$
$2 + k = 2 + k$
$3 + 3 = 5 + 5$
$4 + 0 = 4$
$2 + 2 = 4$ . . . . 22(   )

23. What per cent of a *semicircle* is a circle?
23–1 50%
23–2 100%
23–3 150%
23–4 200%
23–5 −50% . . . . 23(   )

24. The rule for finding the length of a side of a right triangle if the other two sides are known was developed by the mathematician
24–1 Euclid.
24–2 Einstein.
24–3 Archimedes.
24–4 Plato.
24–5 Pythagoras. . . . . 24(   )

25. The *metric system* was first used in
25–1 France.
25–2 England.
25–3 Germany.
25–4 China.
25–5 the United States. . . . . 25(   )

If you finish before the time is up, you may go back and work on any part.

Number wrong	0 | 2	3 | 6	7 | 10	11 | 14	15 | 18	19 | +
Amount to be subtracted	0	1	2	3	4	5

Number right________

Subtract________
(See table at left.)

Raw Score on Part IV = Difference________

Scaled Score________
(See table on key.)

J 41 R 20 X

EDUCATIONAL TESTING SERVICE

COOPERATIVE SCIENCE TEST

FOR GRADES 7, 8, and 9

ORM Y

TEST NUMBER 615-84-1

by

PAUL E. KAMBLY, University of Oregon

with the editorial assistance of

PAUL J. BURKE, Graduate Record Office; CARL A. PEARSON, Southwest High School (Minneapolis);
ALBERT G. REILLEY, Framingham Junior High School; AGATHA TOWNSEND, Educational Records Bureau;
and JOHN G. ZIMMERMAN, College of William and Mary

Please print:

Name.. Date....................................
Last First Middle

Grade or Class.. Age .... Date of Birth ....
Yrs. Mos.

School.. City.. Sex..................
M. or F.

Title of the science course you are now taking (for example: General Science)..................................

....

Teacher..

General Directions: Do not turn this page until the examiner tells you to do so. This examination consists of three parts and requires 80 minutes of working time. The directions for each part are printed at the beginning of the part. Read them carefully and proceed at once to answer the questions. DO NOT SPEND TOO MUCH TIME ON ANY ONE ITEM. ANSWER THE EASIER QUESTIONS FIRST; then return to the harder ones, if you have time. There is a time limit for each part. *You are not expected to answer all the questions in any part in the time limit;* but if you should, go on to the next part. If you have not finished a part when the time is up, stop work on that part and proceed at once to the next part. If you finish the last part before the time is up, you may go back and work on any part. No questions may be asked after the examination has begun.

You may answer questions even when you are not perfectly sure that your answers are correct, but you should avoid **wild** guessing, since wrong answers will result in a subtraction from the number of your correct answers.

Part	Minutes	Raw Score	Scaled Score	Percentile
I Informational Background	40			
II Terms and Concepts	15			
III Comprehension and Interpretation	25			
Total	80			

COOPERATIVE TEST DIVISION
Educational Testing Service

Princeton, N. J. Los Angeles, Calif.

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PART I

INFORMATIONAL BACKGROUND

(40 minutes)

Directions: Each of the questions or incomplete statements below is followed by five choices. Select the one t **best** completes the statement or answers the question, and put its **number** in the parentheses at the right.

1. A man watching the stars notices that stars which were just rising six hours ago are now directly overhead. This effect is caused by the
- 1–1 rotation of the earth on its axis.
- 1–2 vast speed of the stars in distant space.
- 1–3 revolution of the moon about the earth.
- 1–4 motion of the sun among the stars.
- 1–5 turning of the stars around the sun as a center. . . . . 1(   )

2. Discoveries that are announced by scientists are likely to be true because
- 2–1 scientists are educated people.
- 2–2 the discoveries are usually based on careful experiments.
- 2–3 the discoveries are based on natural laws.
- 2–4 scientists rarely make mistakes.
- 2–5 scientists know what they are trying to discover. . . . . 2(   )

3. It is believed that dinosaurs lost out in their struggle for existence chiefly because
- 3–1 they were killed by man for food.
- 3–2 man could not tame them.
- 3–3 they were not adapted to changes that took place in the earth's surface and climate.
- 3–4 they were not fitted to eat plant food.
- 3–5 they had no brains. . . . . 3(   )

4. Which of the following would tend to increase in number most rapidly if all owls in a locality were killed?
- 4–1 Field mice
- 4–2 Robins
- 4–3 Groundhogs
- 4–4 Wild ducks
- 4–5 Quail . . . . 4(   )

5. Which one of the following animals can most easily change his surroundings to fit his needs?
- 5–1 A whale
- 5–2 A gorilla
- 5–3 An elephant
- 5–4 A man
- 5–5 A horse . . . . 5(   )

6. The moon exerts a very important influence on
- 6–1 the tides.
- 6–2 changes in weather.
- 6–3 crops.
- 6–4 the relative lengths of day and night.
- 6–5 climate. . . . . 6(   )

7. The caloric rating of food refers specifically to the
- 7–1 vitamin content.
- 7–2 mineral content.
- 7–3 heat energy released by burning the food.
- 7–4 dry weight.
- 7–5 amount of protoplasm it will build. . 7(

8. Most of the energy used by power plants at Niagara Falls is obtained from water by
- 8–1 evaporating the water.
- 8–2 distilling the water.
- 8–3 changing the water chemically.
- 8–4 making use of the force the water exerts in falling.
- 8–5 taking electricity from the water. . . 8(

9. Soft coal heated to a high temperature in the absence of air will yield
- 9–1 coke.
- 9–2 petroleum.
- 9–3 marble.
- 9–4 lime.
- 9–5 sodium bicarbonate. . . . . 9(

10. A blast furnace is used to
- 10–1 extract aluminum from its ore.
- 10–2 extract iron from its ore.
- 10–3 extract gasoline from petroleum.
- 10–4 produce natural gas.
- 10–5 produce coal gas. . . . . 10(

11. The planet which takes the longest time to revolve around the sun is
- 11–1 the earth.
- 11–2 Mercury.
- 11–3 Venus.
- 11–4 Mars.
- 11–5 Pluto. . . . . 11(

12. Through the entire atmosphere, as one gets farther away from the surface of the earth, the atmosphere
- 12–1 becomes denser.
- 12–2 becomes less dense.
- 12–3 changes continuously in chemical composition.
- 12–4 becomes bluer in color.
- 12–5 increases steadily in temperature. . 12(

13. Fresh water will boil at about
- 13–1 32° Fahrenheit.
- 13–2 68° Fahrenheit.
- 13–3 132° Fahrenheit.
- 13–4 150° Fahrenheit.
- 13–5 212° Fahrenheit. . . . . 13(

Go on to the next pa

Vhat may cause the bulging and breaking f a concrete highway on a hot summer ay?

4–1 Contraction of the concrete
4–2 Expansion of the roadbed
4–3 Chemical changes in the concrete
4–4 Expansion of the concrete
4–5 Contraction of the roadbed . . . . 14(   )

Vhich of these characteristics is probably *east* determined by heredity in normal uman beings?

5–1 Hair color
5–2 Skin color
5–3 Blood type
5–4 Eye color
5–5 Intelligence . . . . 15(   )

n going from Seattle, Washington, to liami, Florida, a traveler crosses

6–1 lines of latitude only.
6–2 lines of longitude only.
6–3 lines of latitude and longitude.
6–4 the prime meridian.
6–5 the International Date Line. . . . 16(   )

Vhich of these recommendations should *ot* be followed if a patient has symptoms f appendicitis?

7–1 Apply a cold application to the abdomen.
7–2 Administer laxatives.
7–3 Call a doctor.
7–4 Give the patient a drink of water.
7–5 Keep the patient inactive. . . . . 17(   )

t is impossible to hear a bell ringing in a acuum because

8–1 there is no material in the vacuum in which sound waves can exist.
8–2 the vacuum acts as a sound conductor.
8–3 the clapper gives up kinetic energy to the vacuum.
8–4 the vacuum decreases the pitch of the bell.
8–5 the vacuum increases the pitch of the bell. . . . . 18(   )

Vhich of the following move through a ire when a current of electricity flows in he wire?

9–1 Atoms
9–2 Neutrons
9–3 Protons
9–4 Electrons
9–5 Molecules . . . . 19(   )

Iow many high tides are there at a point n the ocean shore during a 24-hour period?

0–1 One
0–2 Two
0–3 Three
0–4 Four
0–5 The correct answer is not given. . . 20(   )

21. A certain machine is said to be 50 per cent efficient. What does this mean?

21–1 The machine is not adequate for the task performed.
21–2 The machine operates at maximum efficiency only 50 per cent of the time.
21–3 Only half of the work put into the machine is used up.
21–4 Half of the energy put into the machine is destroyed.
21–5 Only half of the work put into the machine is returned as useful work done. . . . . 21(   )

22. Which of the following gases makes up a higher percentage of the atmosphere around industrial cities than in rural areas?

22–1 Oxygen
22–2 Helium
22–3 Nitrogen
22–4 Argon
22–5 Carbon dioxide . . . . 22(   )

23. Which of the following fish may be affected most by the further development of large dams in the rivers of northwestern states?

23–1 Brook trout
23–2 Tuna
23–3 Salmon
23–4 Sea bass
23–5 Black bass . . . . 23(   )

24. The most practical method used so far to conserve the coal and oil supplies of the country is the

24–1 building of engines run by the sun's rays.
24–2 harnessing of the tides to make electricity.
24–3 substitution of lumber for coal and oil.
24–4 construction of dams for the production of hydroelectric power.
24–5 production of energy by atom smashers. . . . . 24(   )

25. When saturated air is cooled, it

25–1 takes up more moisture.
25–2 loses moisture.
25–3 loses weight.
25–4 increases in volume.
25–5 rises to a higher level. . . . . . . 25(   )

26. In the motor of an automobile, the gasoline in the cylinders is ignited by

26–1 a tiny gas flame.
26–2 spontaneous combustion.
26–3 an electric spark.
26–4 the heat of the engine.
26–5 the pressure in the cylinder. . . . 26(   )

27. During which two phases of the moon does the sun help to cause unusually high tides?

27–1 New moon and full moon
27–2 New moon and third quarter
27–3 First quarter and second quarter
27–4 First quarter and full moon
27–5 Second quarter and half-moon . . 27(   )

Go on to the next page.

28. The gypsy moth and the Japanese beetle are especially destructive to

28–1 clothes.
28–2 ragweed.
28–3 cotton plants.
28–4 wooden buildings.
28–5 trees. . . . . 28(   )

29. The approximate pressure of air at sea level, expressed in inches of mercury, is

29–1 10
29–2 20
29–3 30
29–4 40
29–5 50 . . . . 29(   )

30. The chief difference between the highest note and the lowest note on a piano is that the high note

30–1 is always a louder sound.
30–2 is always a softer sound.
30–3 has more vibrations per second.
30–4 has fewer vibrations per second.
30–5 is a sound that travels faster. . . . 30(   )

31. Molecules of steam differ from those of ice in that the molecules of steam

31–1 move more slowly.
31–2 are smaller.
31–3 contain less energy.
31–4 are closer together.
31–5 are farther apart. . . . . 31(   )

32. Which of the following men is famous for his work in plant breeding?

32–1 Burbank
32–2 Harvey
32–3 Darwin
32–4 Pasteur
32–5 Morgan . . . . 32(   )

33. The planet Mercury differs from the earth in that Mercury

33–1 is larger.
33–2 revolves around the sun.
33–3 rotates on its axis.
33–4 is smaller.
33–5 reflects light. . . . . 33(   )

34. Many insects have a series of tiny openings around the sides of the abdomen. These are used for

34–1 seeing.
34–2 hearing.
34–3 smelling.
34–4 breathing.
34–5 laying eggs. . . . . 34(   )

35. Topsoil is changing in most farming regions by

35–1 becoming shallower.
35–2 becoming deeper.
35–3 increasing in mineral content.
35–4 increasing in water-holding capacity.
35–5 increasing in humus content. . . . 35(   )

36. The fact that a man has a low-pitched voice indicates that his vocal cords

36–1 are short and thin.
36–2 are tightly stretched.
36–3 do not vibrate rapidly.
36–4 vibrate rapidly.
36–5 vibrate uniformly. 36

37. The immediate source of the water which forms dew on grass during some summer evenings is

37–1 the air.
37–2 the soil.
37–3 the grass.
37–4 low fog.
37–5 clouds. 37

38. Which of the following substances has the highest boiling point?

38–1 Ether
38–2 Alcohol
38–3 Gasoline
38–4 Water
38–5 Mercury 38

39. The white chalk cliffs at Dover, England, are made of

39–1 granite.
39–2 sandstone.
39–3 shale.
39–4 limestone.
39–5 slate. 39

40. When samples of wool and cotton are boiled in lye solution, it is observed that the wool dissolves and the cotton is unaffected. This experiment is important because it

40–1 shows that cotton will not be injured if lye is spilled on it.
40–2 shows that cotton is stronger than wool.
40–3 enables one to determine whether a given sample of cloth is cotton or wool.
40–4 shows that wool is obtained from animals.
40–5 shows that wool is warmer than cotton. . . . . 40(

41. Which of the following statements about the color of ordinary sunlight is true?

41–1 It is yellow in color.
41–2 It is orange in color.
41–3 Nothing is known about its color.
41–4 It has no color.
41–5 It contains all the colors. . . . . . 41(

42. One important function of man's skin is to aid in the

42–1 digestion of food.
42–2 storage of food.
42–3 absorption of air into the body.
42–4 regulation of body temperature.
42–5 elimination of bacteria from the blood. . . . . 42(

Go on to the next

Vhy do cavities in teeth enlarge rapidly vhen bacteria act on sugar which is lodged n the cavities?
3–1 Acids formed by bacteria dissolve calcium salts.
3–2 Toxins formed by bacteria soften teeth.
3–3 Bacteria also digest calcium salts.
3–4 Enzymes formed by bacteria dissolve calcium salts.
3–5 Alcohol formed during sugar digestion dissolves calcium salts. . . . . 43(   )

Vhat happens to a lighted match when it thrust into a bottle of pure oxygen?
4–1 It explodes.
4–2 It goes out.
4–3 It ignites the oxygen.
4–4 It burns very slowly.
4–5 It burns more rapidly. . . . . . . 44(   )

air weather clouds that have flat bases nd rounded tops are called
5–1 stratus.
5–2 nimbus.
5–3 cumulo-nimbus.
5–4 cumulus.
5–5 cirrus. . . . . 45(   )

apillaries connect large vessels of the
6–1 circulatory system.
6–2 excretory system.
6–3 muscular system.
6–4 nervous system.
6–5 digestive system. . . . . 46(   )

he energy in coal originally came from
7–1 the air.
7–2 the sun.
7–3 boiling water.
7–4 petroleum.
7–5 the interior of the earth. . . . . . 47(   )

boat is to be pulled out of the water onto he beach on a set of rollers. Before the mount of work required for this operation an be determined, it is necessary to know
8–1 only the distance the boat is to be moved along the beach.
8–2 the volume of the boat and the distance it is to be moved.
8–3 the force required to move the boat and the distance it is to be moved.
8–4 the shape and size of the boat.
8–5 the weight of the boat and the diameter of the rollers. . . . . 48(   )

magnet will lose its magnetism if it is
9–1 dipped in water.
9–2 pointed toward the north pole of the earth.
9–3 hammered.
9–4 brought near a compass.
9–5 brought near a piece of metal. . . 49(   )

50. Which one of the following is operated by air under high pressure?
50–1 Gasoline engine
50–2 Typewriter
50–3 Pneumatic drill
50–4 Fountain pen
50–5 Medicine dropper . . . . 50(   )

51. The function of the valves in wind musical instruments is to
51–1 control the loudness of the sounds produced.
51–2 keep the length of air columns from changing.
51–3 keep air columns from vibrating.
51–4 make air columns vibrate.
51–5 change the length of vibrating air columns. . . . . 51(   )

52. One reason why air rises over a midwestern lake on summer evenings is that the air
52–1 contains little water vapor.
52–2 contains much water vapor.
52–3 is colder than surrounding air.
52–4 is warmer than surrounding air.
52–5 does not change in temperature as rapidly as the water. . . . . 52(   )

53. Lean meat is important in the diet of people who engage in strenuous physical labor because it
53–1 contains much protein.
53–2 releases more heat energy than fats.
53–3 releases more heat energy than carbohydrates.
53–4 contains essential vitamins.
53–5 contains bone-building minerals. . . 53(   )

54. Many of the small motors used in refrigerators and washing machines are rated at *one-fourth* horsepower. How many foot-pounds of work can such a motor do in one minute?
54–1 550
54–2 8,250
54–3 11,500
54–4 22,250
54–5 33,000 . . . . 54(   )

55. Which of the following is *most* important in determining the amount of silt a river can carry?
55–1 Rate of water flow
55–2 Depth of the river
55–3 Width of the river
55–4 Length of the river
55–5 Volume of water . . . . 55(   )

56. Which of the following has the greatest density?
56–1 Water
56–2 Gasoline
56–3 Cork
56–4 Aluminum
56–5 Mercury . . . . 56(   )

Go on to the next page.

57. A reddish-brown deposit left in a container from which water has evaporated indicates that the water most likely contained dissolved
57–1 sodium chloride.
57–2 limestone.
57–3 iron compounds.
57–4 phosphorus compounds.
57–5 nitrates. . . . . 57(   )

58. Planets differ from stars in that the planets are
58–1 visible because of incandescent solids.
58–2 fixed in space.
58–3 visible because of reflected light.
58–4 larger.
58–5 visible because of hot gases. . . . 58(   )

59. Limestone is made up of calcium carbonate which will not dissolve in alkaline water. The fact that ground water does dissolve some calcium carbonate indicates that ground water contains some
59–1 alkali.
59–2 minerals.
59–3 enzymes.
59–4 acid.
59–5 salts. . . . . 59(   )

60. When it is 10:00 p.m. in Portland, Oregon, what time is it in New York City? (Assume standard time in both cities.)
60–1 1 a.m.
60–2 2 a.m.
60–3 7 p.m.
60–4 8 p.m.
60–5 12 p.m. . . . . 60(   )

61. It does not get dark immediately after the sun sets in the evening because
61–1 some light is absorbed by the earth.
61–2 light is reflected from dust in the atmosphere.
61–3 light is reflected from parts of the earth on which the sun is shining.
61–4 luminous bodies on the earth give off light.
61–5 light rays are bent by the clouds. . 61(   )

62. A warm air current, saturated with moisture, rising into a cold level of air would be likely to form
62–1 dew.
62–2 frost.
62–3 a cloud.
62–4 clear weather conditions.
62–5 an area of high visibility. . . . . . 62(   )

63. In the United States, days and nights are of approximately equal length on
63–1 March 21 and December 21.
63–2 March 21 and June 21.
63–3 June 21 and September 21.
63–4 March 21 and September 21.
63–5 September 21 and December 21. . 63(   )

64. Which of the following planets has its orbit within the orbit of the earth?
64–1 Saturn
64–2 Jupiter
64–3 Uranus
64–4 Neptune
64–5 Venus 64

65. The body temperature of cold-blooded animals is
65–1 always lower than that of their surroundings.
65–2 nearly the same as that of their surroundings.
65–3 constant.
65–4 always lower than that of warm-blooded animals.
65–5 dependent upon the amount of food they obtain. . . . . 65(

66. A molecule of water may be separated into its elements by
66–1 violent boiling.
66–2 evaporation.
66–3 a magnetic field.
66–4 freezing temperatures.
66–5 a direct current of electricity. . . . 66(

67. When light rays pass from air into water, they are
67–1 bent.
67–2 stopped.
67–3 speeded up.
67–4 not affected.
67–5 made stronger. . . . . 67(

68. Deciduous trees should be transplanted in early spring or in the fall because at these times
68–1 trees need very little water.
68–2 it is not necessary to be very careful about packing the roots or trimming the branches.
68–3 the sap is found mostly in the main trunk or larger roots.
68–4 there is little demand on the tree for growth.
68–5 the cool weather prevents the tree from dying. . . . . 68(

69. The raw materials used by green plants in the manufacture of carbohydrates are
69–1 minerals and water.
69–2 sunlight and water.
69–3 oxygen and water.
69–4 carbon dioxide and water.
69–5 sunlight and carbon dioxide. . . . 69(

70. Birds that catch insects in flight have beaks that are
70–1 curved and sharp.
70–2 long and narrow.
70–3 long and thick.
70–4 short and thick.
70–5 short and wide. . . . . 70(

Go on to the next p

What gas makes up the major part of the earth's atmosphere?

71–1 Water vapor
71–2 Oxygen
71–3 Carbon dioxide
71–4 Nitrogen
71–5 Hydrogen . . . . 71(   )

Which of the following would be true if the earth's axis were perpendicular to the plane of the earth's orbit?

72–1 Seasonal changes in temperature would be greater.
72–2 Seasonal changes in temperature would be less.
72–3 Days and nights would vary more widely in length during different seasons.
72–4 Winters would be longer in all regions.
72–5 Summers would be longer in all regions. . . . . 72(   )

73. The material used in fuses must

73–1 contain copper.
73–2 have a high melting point.
73–3 have a low melting point.
73–4 have high electrical resistance.
73–5 contain silver. . . . . 73(   )

74. Food often seems tasteless when one has a cold because the

74–1 saliva does not flow easily.
74–2 sense of smell is impaired.
74–3 flow of saliva is increased.
74–4 Eustachian tube is clogged.
74–5 tongue is coated with a white substance. . . . . 74(   )

75. Which one of the following men first worked with microscopes?

75–1 Leeuwenhoek
75–2 Audubon
75–3 Hooke
75–4 Jenner
75–5 Linnaeus . . . . 75(   )

Go on to the next part.

Number wrong	0–2	3–6	7–10	11–14	15–18	19–22	23–26	27–30	31–34	35–38	39–42	43–46	47–50	51–54	55–58	59–+
Amount to be subtracted	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Number right________

Subtract________
(See table at left)

Raw Score on Part I = Difference________

PART II

TERMS AND CONCEPTS

(15 minutes)

Directions: Continue as in the preceding part.

1. At certain times the moon comes in front of the sun and cuts off the sunlight. This effect is called
1–1 a transit.
1–2 an eclipse.
1–3 a penumbra.
1–4 a sunspot.
1–5 a solar prominence. . . . . 1(   )

2. The instrument used to look at and study the surface of the moon and the planets is the
2–1 galvanoscope.
2–2 microscope.
2–3 telescope.
2–4 electroscope.
2–5 radiometer. . . . . 2(   )

3. Desert land lacks the moisture necessary for the growth of crops. Such areas could be made productive by
3–1 cultivation.
3–2 fertilization.
3–3 erosion.
3–4 irrigation.
3–5 flood control. . . . . 3(   )

4. Which of the following instruments shows wind direction?
4–1 An anemometer
4–2 A weather vane
4–3 A thermograph
4–4 A barometer
4–5 A hygrometer . . . . 4(   )

5. A man who claims to be able to cure all diseases with a single medicine is evidently a
5–1 druggist.
5–2 reputable physician.
5–3 quack.
5–4 research scientist.
5–5 surgeon. . . . . 5(   )

6. The path of a planet, moon, or comet is also known as its
6–1 diameter.
6–2 radius.
6–3 circumference.
6–4 orbit.
6–5 speed. . . . . 6(   )

7. When the E string on a violin is tightened, the
7–1 pitch is raised.
7–2 pitch is lowered.
7–3 intensity is increased.
7–4 intensity is decreased.
7–5 overtones are improved. . . . . . . 7(   )

8. The most destructive type of local storm is usually
8–1 a cyclone.
8–2 an anti-cyclone.
8–3 a whirlwind.
8–4 a thunderstorm.
8–5 a tornado. . . . . 8(

9. Fuels will not begin to burn unless they are heated to the
9–1 critical temperature.
9–2 kindling temperature.
9–3 melting point.
9–4 reduction temperature.
9–5 boiling point. . . . . 9(

10. One end of a magnetized soft-iron rod is definitely known to be a north pole. How many other magnetic poles are there on the same rod?
10–1 One
10–2 Two
10–3 Three
10–4 Four
10–5 Five . . . . 10(

11. An instrument which measures changes in atmospheric pressure is called a
11–1 thermometer.
11–2 calorimeter.
11–3 pressure gauge.
11–4 hygrometer.
11–5 barometer. . . . . 11(

12. Pasteurizing milk is a process which kills
12–1 the bacteria that cause souring.
12–2 certain bacteria that may cause disease.
12–3 all the bacteria present.
12–4 the bacterial spores.
12–5 all the organisms present. . . . . 12(

13. If two plants of the same species but of different varieties are mated, the offspring are called
13–1 mongrels.
13–2 sports.
13–3 biennials.
13–4 lentils.
13–5 hybrids. . . . . 13(

14. The thyroid is a gland located in the
14–1 skull.
14–2 neck.
14–3 chest.
14–4 abdomen.
14–5 pelvis. . . . . 14(

Go on to the next pag

One way of removing impurities from water is by passing it through sand. This process is called
15–1 aeration.
15–2 sedimentation.
15–3 centrifugation.
15–4 filtration.
15–5 sanding. . . . . 15( )

What are vertebrae?
16–1 Bones that compose the spinal column
16–2 Nervous systems of higher animals
16–3 Animals having a backbone
16–4 The lower ribs
16–5 Worm-like animals . . . . 16( )

The energy necessary for photosynthesis in green plants comes from the
17–1 cells.
17–2 air.
17–3 soil.
17–4 chlorophyll.
17–5 sun. . . . . 17( )

A liquid in which the molecules of one substance are uniformly distributed among the molecules of another substance is called a
18–1 suspension.
18–2 sediment.
18–3 solution.
18–4 solute.
18–5 solvent. . . . . 18( )

Lines on a daily weather map that are drawn through the locations of the weather stations reporting the same atmospheric pressure for the day are called
19–1 graph lines.
19–2 isotherms.
19–3 isobars.
19–4 barographs.
19–5 thermographs. . . . . 19( )

What is the gas with which so-called "soft drinks" are charged?
20–1 Carbon monoxide
20–2 Carbon dioxide
20–3 Nitrogen
20–4 Water vapor
20–5 Hydrogen . . . . 20( )

An artery is most accurately defined as a blood vessel carrying
21–1 blood away from the heart.
21–2 blood to the heart.
21–3 pure blood.
21–4 impure blood.
21–5 red blood. . . . . 21( )

A door knob is an example of a simple machine known as
22–1 a pulley.
22–2 a screw.
22–3 an inclined plane.
22–4 a wheel and axle.
22–5 a Pelton wheel. . . . . 22( )

23. Heat energy is changed to the energy of motion by
23–1 a flywheel.
23–2 a water turbine.
23–3 a storage battery.
23–4 an electric motor.
23–5 a steam engine. . . . . 23( )

24. Which of the following is a form of organic matter?
24–1 Wood
24–2 Iron
24–3 Water
24–4 Limestone
24–5 Cement . . . . 24( )

25. An opaque body is one which
25–1 is colored.
25–2 is colorless.
25–3 allows no light to pass through.
25–4 allows some light to pass through.
25–5 allows all light to pass through. . . 25( )

26. Which of the following foods is most likely to contain large numbers of disease-causing bacteria?
26–1 Raw milk
26–2 Potato
26–3 Lettuce
26–4 Poultry
26–5 Uncooked pork . . . . 26( )

27. A bonfire warms people that are near it because heat
27–1 sets up convection currents.
27–2 diffuses.
27–3 flows.
27–4 travels through air by conduction.
27–5 is radiated. . . . . 27( )

28. The north pole is 90° north of the
28–1 prime meridian.
28–2 tropic of Cancer.
28–3 equator.
28–4 tropic of Capricorn.
28–5 south pole. . . . . 28( )

29. All matter is made up of
29–1 atoms.
29–2 cells.
29–3 compounds.
29–4 mixtures.
29–5 solids. . . . . 29( )

30. When a liquid is distilled, it is always
30–1 boiled for a long time.
30–2 fermented.
30–3 heated without boiling.
30–4 changed into a vapor and then back to a liquid.
30–5 frozen and then melted again. . . . 30( )

31. Which of the following is a characteristic of *all* bacteria?
31–1 They cause disease.
31–2 They are harmful.
31–3 They are made up of one cell.
31–4 They live in animals.
31–5 They give off poisonous compounds. 31( )

Go on to the next page.

32. The force exerted by air upon the earth's surface is called
32–1 cohesion.
32–2 density.
32–3 centrifugal force.
32–4 capillary attraction.
32–5 atmospheric pressure. . . . . . 32(   )

33. The outer layer of cells on a young tree twig is called the
33–1 epidermis.
33–2 cambium.
33–3 phloem.
33–4 xylem.
33–5 pith. . . . . 33(   )

34. A drone is a
34–1 female bee.
34–2 worker bee.
34–3 male bee.
34–4 soldier ant.
34–5 female ant. . . . . 34(   )

35. Which of the following elements burns brightly in air and extremely brightly in pure oxygen?
35–1 Magnesium
35–2 Iodine
35–3 Fluorine
35–4 Argon
35–5 Hydrogen . . . . 35(   )

36. Oxygen unites chemically with other substances in muscle cells in the process called
36–1 excretion.
36–2 respiration.
36–3 digestion.
36–4 secretion.
36–5 circulation. . . . . 36(   )

37. The process which changes rock to soil is called
37–1 precipitation.
37–2 fission.
37–3 condensation.
37–4 weathering.
37–5 erosion. . . . . 37(   )

38. Which of the following substances is an element?
38–1 Water
38–2 Salt
38–3 Vinegar
38–4 Carbon dioxide
38–5 Oxygen . . . . 38(   )

39. In order to operate successfully, an electric motor does *not* need
39–1 an armature.
39–2 an electromagnet.
39–3 a coil.
39–4 a transformer.
39–5 a source of current. 39

40. Heat moves along a metal rod by
40–1 convection.
40–2 conduction.
40–3 radiation.
40–4 induction.
40–5 osmosis. . . . . 40(

41. Which of the following is an example of a stratified rock?
41–1 Feldspar
41–2 Granite
41–3 Marble
41–4 Mica
41–5 Shale . . . . 41(

42. Phosphorus is used in some match heads because it
42–1 has a low kindling point.
42–2 has a high kindling point.
42–3 is not poisonous.
42–4 will burn without oxygen.
42–5 can be heated by friction. . . . . 42(

43. All telegraph sounders contain
43–1 vacuum tubes.
43–2 loud-speakers.
43–3 electromagnets.
43–4 push buttons.
43–5 dry cells. . . . . 43(

44. Which of the following contains an enzyme that acts on starches?
44–1 Gastric juice
44–2 Bile
44–3 Lymph
44–4 Blood
44–5 Pancreatic juice . . . . 44(

45. In man, most carbohydrate digestion takes place in the
45–1 liver.
45–2 small intestine.
45–3 mouth.
45–4 large intestine.
45–5 stomach. . . . . 45(

Go on to the next

Number wrong	0 │ 2	3 │ 6	7 │ 10	11 │ 14	15 │ 18	19 │ 22	23 │ 26	27 │ 30	31 │ 34	35 │ +
Amount to be subtracted	0	1	2	3	4	5	6	7	8	9

Number right_____

Subtract_____
(See table at left)

Raw Score on Part II = Difference_____

PART III

COMPREHENSION AND INTERPRETATION

(25 minutes)

rections: This part consists of passages and tables. Following each selection are several items concerning it. ad the passage or examine the table carefully first; then decide which one of the choices given after each item st completes the statement or answers the question. If you cannot decide, you may go back to the selection. After u have decided on the answer to an item, put its **number** in the parentheses at the right as you did in Parts I and II.

SOME COMMON COMMUNICABLE DISEASES

Disease	Means of Communication	Early Symptoms
Chicken Pox	Discharges from nose or throat of patient.	Rash.
Diphtheria	Nose or throat discharges; sometimes infected milk.	Begins like a cold.
Measles	Nose or throat discharges.	Begins like a cold. Reddish spots appear on the third day.
Mumps	Nose or throat discharges.	Pain in salivary glands.
Scarlet Fever	Discharges from nose, mouth, ears; infected milk.	Begins like a cold. In 24 hours evenly diffused bright red spots appear under skin.
Whooping Cough	Discharges from nose or mouth.	Cough worse at night. "Whooping" develops in about 2 weeks.

According to the table above, impure milk is most likely to carry germs of

1–1 measles.
1–2 mumps.
1–3 scarlet fever.
1–4 chicken pox.
1–5 whooping cough. . . . . 1(   )

Mary was sent home from school with what seemed like a cold accompanied by a rash. One would be justified in concluding that she probably had

2–1 diphtheria.
2–2 whooping cough.
2–3 mumps.
2–4 tuberculosis.
2–5 some communicable disease; it is impossible to tell which one from the information given. . . . . 2(   )

3. The diseases listed in the table, taken as a whole, are most likely to be spread by

3–1 spoiled food.
3–2 polluted water.
3–3 air-borne germs.
3–4 unpasteurized milk.
3–5 household pets. . . . . 3(   )

4. One of the most practicable ways to avoid getting these diseases is to

4–1 stay away from crowds in poorly ventilated rooms.
4–2 eliminate milk from one's diet.
4–3 boil all drinking water.
4–4 pasteurize all milk.
4–5 screen all windows and doors. . . . . 4(   )

Go on to the next page.

In 1941 the United States shipped some 150,000 tons of water to Great Britain. This represents the water content (75 to 95%) of the fruits and vegetables that were transported during that year. Removal of this water by dehydration before shipping will make it possible for this tonnage to be used for the transportation of other materials.

Modern scientific dehydration preserves the flavor and some 90% of the vitamins of fresh food. In one process the fruits and vegetables are cooked, cooled, pulped, and then sprayed in a thin film on revolving drums, where heat drives off 96% of their water in from ten to twenty seconds. Steam rising rapidly from the food prevents oxidation, as when apples turn brown. The foods most successfully dried in this way are apples, bananas, peaches, peas, squash, and pumpkin; and in the dried state these foods will store well for years. When water is added and the food warmed up (it need not be cooked again), it is ready to be served.

5. The process described by the writer removes most of the water from the food by
   5–1 oxidation.
   5–2 preservation.
   5–3 evaporation.
   5–4 transportation.
   5–5 cooling. . . . . 5(   )

6. The writer of the passage believes that
   6–1 many foods should be dehydrated before shipping.
   6–2 less food should be transported to Great Britain.
   6–3 dehydrated foods contain more vitamins than untreated foods.
   6–4 the transportation of other materials is more important than the transportation of food.
   6–5 dehydration of foods improves their flavor. . . . . 6(   )

7. According to the passage, an important reason for drying foods before shipment is to
   7–1 increase the amount of water shipped to Great Britain.
   7–2 permit greater shipments of other materials.
   7–3 prevent apples from turning brown.
   7–4 conserve fuel by making it unnecessary to cook foods.
   7–5 make the foods more convenient to serve. . . . . 7(   )

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Figure 1

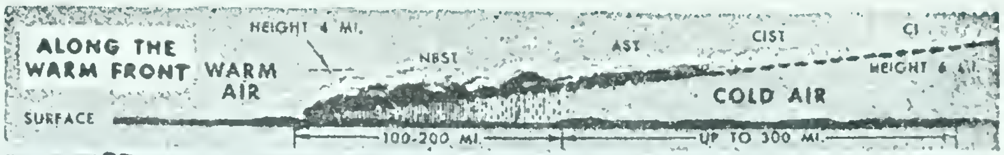
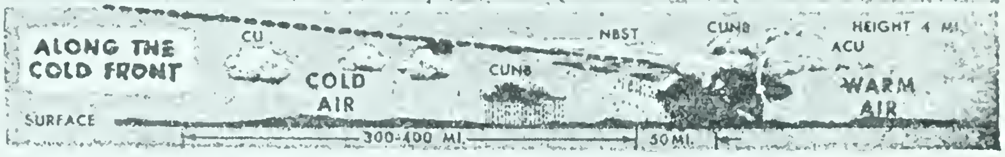


Figure 2



When air masses are active, storms occur. To a teorologist a storm does not necessarily mean rain or ow. It is merely an active field of combat where warm has made a dent in the cold front. This forms a round oval low-pressure storm area, anywhere from 300 to 00 miles in diameter, with the winds revolving around counterclockwise and spiraling slowly towards the nter.

Rains sometimes fall along the fronts in this "low" d are carried across the country by the prevailing sterly winds. Along the warm front, the onrushing rm air climbs over and pushes back the wedge of cold air, as is shown in Figure 1. As it rises, it cools and gives up its moisture. Clouds form as billions of tiny water droplets, only about 4 ten-thousandths of an inch across, condense out of the air, and cling to microscopic bits of dust. Then, as the droplets grow in size, they fall and we have rain—or if they freeze on the way down, we have sleet; or if they form crystals of ice while they are still in the cloud, we have snow.

Along the cold front, shown in Figure 2, changes are usually sharper. The warm air is pushed upward suddenly, and huge quantities of water, often thousands of tons, condense out of it to form towering thunderheads.

. A storm may best be defined as
8–1 a low-pressure area.
8–2 a high-pressure area.
8–3 an area in which the winds are revolving clockwise.
8–4 an area in which the winds are spiraling out from the center.
8–5 an area in which there are violent and destructive winds. . . . . 8( )

. Rains usually move across the United States from
9–1 east to west.
9–2 west to east.
9–3 north to south.
9–4 south to north.
9–5 southeast to northwest. . . . . 9( )

. Which of the following characteristics of the warm air mass is responsible for its position as shown in Figure 1?
10–1 Rapid motion
10–2 Counterclockwise motion
10–3 Large volume
10–4 Light weight
10–5 Relatively heavy weight . . . . . 10( )

. Sleet particles are most accurately described as
11–1 frozen rain drops.
11–2 large hailstones.
11–3 frozen water vapor.
11–4 small bits of dust.
11–5 a kind of snow. . . . . 11( )

12. Rains are caused by
12–1 cold fronts being pushed upward.
12–2 cold fronts being pushed downward.
12–3 warm fronts rising over cold fronts.
12–4 warm fronts going under cold fronts.
12–5 warm fronts mixing with cold fronts. 12( )

13. The center of every raindrop is
13–1 a molecule of water.
13–2 an atom of water.
13–3 a tiny particle of ice.
13–4 a tiny particle of dust.
13–5 an electron. . . . . 13( )

14. A person who predicts weather on the basis of accurate information is technically called
14–1 a weather forecaster.
14–2 a geologist.
14–3 a meteorologist.
14–4 an anemometer.
14–5 an astrologist. . . . . 14( )

15. What is the approximate diameter in inches of a water droplet in a cloud?
15–1 .4
15–2 .04
15–3 .004
15–4 .0004
15–5 .00004 . . . . 15( )

Go on to the next page.

(1) The work you do in walking is, for the greater
(2) part, work in lifting your body. To find how high
(3) you lift your body at each step, hold a piece of
(4) crayon touching the blackboard when you stand
(5) with your side to it. Walk along at your natural
(6) gait, keeping the arm rigid with the body. The
(7) crayon makes a rising and falling curved line.
(8) Find the number of inches from the average of the
(9) lowest points on the curve to the average of the
(10) highest points on the curve. This is the distance
(11) you lift your body at each step. Measure this
(12) distance in inches and change to a fraction of a
(13) foot. This number multiplied by your weight is
(14) the work you do at each step; multiply by the
(15) number of steps you take in walking from home
(16) to school to get the foot-pounds of work you do.

16. The work you do in taking one step is found by multiplying your weight by

16–1 12.
16–2 your height.
16–3 the distance, in feet, that your body is lifted in taking a step.
16–4 the length, in feet, of the curved line in the experiment.
16–5 the number of inches in one step. . 16(   )

17. In calculating the amount of work you do in walking from home to school by the method described above, it is *not* necessary to know

17–1 your weight.
17–2 the distance you lift your body at each step.
17–3 the number of inches in one foot.
17–4 the number of steps from home to school.
17–5 the speed with which you walk. . . 17(   )

18. This method for measuring the work you do in walking would be *least* accurate if you

18–1 weighed a great deal.
18–2 were going uphill.
18–3 walked in a straight line.
18–4 walked in a circle.
18–5 walked very slowly. . . . . 18(   )

19. Even without the use of the crayon and blackboard, one could calculate that the work done by a 200-pound man going up a step 9 inches high would be

19–1 150 foot-pounds.
19–2 175 foot-pounds.
19–3 200 foot-pounds.
19–4 267 foot-pounds.
19–5 1,500 foot-pounds. . . . . 19(

20. To make the change indicated in lines 12 and 13 of the passage, it is necessary to

20–1 multiply by your weight.
20–2 multiply by the number of steps from home to school.
20–3 multiply by 12.
20–4 divide by 12.
20–5 divide by your height. . . . . . . 20(

21. If your weight is 120 pounds, and the distance you lift your body at each step is one inch, how much work will you do in taking 1,000 steps?

21–1 1,000 foot-pounds
21–2 1,200 foot-pounds
21–3 10,000 foot-pounds
21–4 12,000 foot-pounds
21–5 120,000 foot-pounds . . . . 21(

Go on to the next pa

Often the instinctive actions of insects seem so complicated that it is difficult to think of them as being purely mechanical reactions, as they are. The actions of a certain larva that is a parasite of one of the wild solitary bees illustrate this statement. Following their inherited instincts, these tiny larvae lie in wait for this certain kind of bee at the mouth of the underground tunnel in which she builds her nest. As she approaches, several of the larvae leap upon her back and bury themselves in her hair. Here they remain motionless while the bee, following her instincts, makes the necessary journeys to the flowers for materials with which to construct her cells and to store them with food for her young. But the instant she lays an egg in a cell, the egg somehow serves as a stimulus to the little parasites. Immediately they leap upon it, for it is the bee's egg that they use for food. The bee seals the cell in her customary mechanical way—the only way that her inherited nerve structure permits. She has no way of knowing that her egg will be eaten, nor can she alter her behavior in the slightest degree.

The larva mentioned in the passage above is
22–1 not harmful to bees in general.
22–2 really of benefit to bees.
22–3 harmful to many insects.
22–4 a parasite.
22–5 a nest-builder. . . . . 22(   )

The food of the larvae consists of
23–1 honey.
23–2 part of a beehive.
23–3 bees' eggs.
23–4 bees' hair.
23–5 parasites. . . . . 23(   )

According to the writer, the actions of both the bee and the larva depend on
24–1 past experience.
24–2 the need for food.
24–3 parental instruction.
24–4 intelligent planning.
24–5 inherited nerve structure. . . . . . 24(   )

25. The author feels that
25–1 some bees are very intelligent.
25–2 seemingly intelligent behavior in insects is merely instinctive.
25–3 parasites are among the most intelligent of insects.
25–4 parasites as well as insects are important in pollinating flowers.
25–5 domestic bees have more highly developed nerve structures than wild solitary bees. . . . . 25(   )

26. From the passage, one could justifiably conclude that
26–1 most parasites eat bees' eggs.
26–2 this larva has a well-developed sense of smell.
26–3 the disappearance of this kind of bee might also cause the disappearance of these larvae.
26–4 the bees who know that their eggs are under attack can drive parasites away.
26–5 this larva would be found in all beehives. . . . . 26(   )

Go on to the next page.

The first stroke of the four-stroke cycle Diesel engine is the intake of a charge of fresh air. With the inlet valve open, the piston, moving downward, pumps in air to fill the cylinder. When the piston passes the bottom of its stroke, the inlet valve closes.

The second stroke compresses the air to between 500 and 600 pounds per square inch. When air is compressed, its temperature rises. In the Diesel engine the temperature of the compressed air may reach as high as 1,000 degrees Fahrenheit.

The fuel is injected into this hot air. Since the oil is in a fine, fog-like spray, it starts to burn immediately. The injector continues to spray fuel oil into the cylinder until all of the charge is injected. The pressure in the cylinder rises to between 800 and 850 pounds per square inch.

The third stroke is the power stroke. The hot gases expand and force the piston downward. The chemical energy of the fuel is converted into mechanical energy to move the piston.

The fourth stroke is the exhaust stroke. The exhaust valve opens and the piston, moving upward, forces the burned gases out to make room for a new charge of air.

27. The pressure which injects oil into a Diesel cylinder must be at least
27–1 15 pounds per square inch.
27–2 30 pounds per square inch.
27–3 100 pounds per square inch.
27–4 400 pounds per square inch.
27–5 800 pounds per square inch. . . . 27( )

28. Which of the following processes is most important during the third stroke of the piston?
28–1 Chemical changes occur.
28–2 Air is compressed.
28–3 Heat is absorbed.
28–4 Energy is stored.
28–5 Energy is destroyed. . . . . 28( )

29. What causes the fuel to ignite in a Diesel cylinder?
29–1 Hot fuel
29–2 A spark
29–3 Hot air
29–4 Heat of friction
29–5 A fuel pump . . . . 29(

30. In what position are the valves during the compression stroke?
30–1 Both are open.
30–2 Both are closed.
30–3 The inlet valve is open and the exhaust valve is closed.
30–4 The inlet valve is closed and the exhaust valve is open. . . . . 30(

If you finish this part before the time is up, you may go back and work on any part.

Number wrong	0–2	3–6	7–10	11–14	15–18	19–22	23+
Amount to be subtracted	0	1	2	3	4	5	6

Number right_____

Subtract_____
(See table at left)

Raw Score on Part III = Difference_____

EDUCATIONAL TESTING SERVICE

COOPERATIVE SOCIAL STUDIES TEST

FOR GRADES 7, 8, and 9

RM Y

TEST NO. 739–84–1

by
EUNICE ANN LLOYD, Hastings-on-Hudson High School
with the editorial assistance of
HOWARD R. ANDERSON, U. S. Office of Education; HARRY D. BERG, Michigan State College;
ELAINE FORSYTH, Albany State Teachers College; ZITA MATTHEWS, East Haven High School;
and AGATHA TOWNSEND, Educational Records Bureau

Please print:

Name.. Last .... First .... Middle .... Date..............................
Grade or Class.............................. Age .... Yrs. .... Mos. .... Date of Birth ....
School.. City.. Sex .... M. or F.
Title of the social studies course you are now taking (for example, American history)
....
Teacher..

General Directions: Do not turn this page until the examiner tells you to do so. This examination consists of three parts and requires 80 minutes of working time. The directions for each part are printed at the beginning of the part. Read them carefully and proceed at once to answer the questions. DO NOT SPEND TOO MUCH TIME ON ANY ONE ITEM. ANSWER THE EASIER QUESTIONS FIRST; then return to the harder ones if you have time. There is a time limit for each part. *You are not expected to answer all the questions in any part in the time limit.* If you have not finished a part when the time is up, stop work on that part and proceed at once to the next part. If you finish a part before the time is up, go on to the next part. If you finish the last part before the time is up, you may go back and work on any part. No questions may be asked after the examination has begun.

You may answer questions even when you are not perfectly sure that your answers are correct, but you should avoid **wild** guessing, since wrong answers will result in a subtraction from the number of your correct answers.

Part	Minutes	Raw Score	Scaled Score	Percentile
I Informational Background	40			
II Terms and Concepts	15			
III Comprehension and Interpretation	25			
Total	80			

COOPERATIVE TEST DIVISION
EDUCATIONAL TESTING SERVICE
Princeton, N. J. Los Angeles, Calif.

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PART I

INFORMATIONAL BACKGROUND

(40 minutes)

Directions: Each of the incomplete statements or questions below is followed by several choices. Select the one **best** completes the statement or answers the question, and put its **number** in the parentheses at the right.

1. American settlers in great numbers were first attracted to California by
1–1 its fertile land.
1–2 the discovery of gold.
1–3 its climate.
1–4 the need for a way station on the sea voyage from New England to China.
1–5 a desire to drive out the Spanish. . . 1( )

2. The national anthem of the United States is
2–1 *Columbia, the Gem of the Ocean.*
2–2 *America, the Beautiful.*
2–3 *The Star-Spangled Banner.*
2–4 *America.*
2–5 *Yankee Doodle.* . . . . 2( )

3. The most important of the Greek city-states was
3–1 Thebes.
3–2 Corinth.
3–3 Sparta.
3–4 Athens.
3–5 Miletus. . . . . 3( )

4. Who was John Paul Jones?
4–1 A famous jockey
4–2 A naval hero of the Revolutionary War
4–3 A leader in the Virginia colony
4–4 One of Washington's aides
4–5 A member of the Committees of Correspondence . . . . 4( )

5. The fertility of the soil in ancient Egypt was mainly due to the
5–1 rotation of crops.
5–2 annual overflow of the Nile.
5–3 careful cultivation of the soil.
5–4 use of fertilizers.
5–5 type of crops raised. . . . . 5( )

6. To stop the spread of an epidemic, whole states may be quarantined by the
6–1 United States Army.
6–2 United States Department of Commerce.
6–3 American Red Cross.
6–4 United States Public Health Service.
6–5 President of the United States. . . . 6( )

7. A college education is an essential part of the preparation for making one's living as
7–1 a musician.
7–2 an artist.
7–3 a florist.
7–4 a physician.
7–5 a real estate agent. . . . . 7( )

8. The cereal that requires the greatest amount of water during the growing season is
8–1 wheat.
8–2 rice.
8–3 rye.
8–4 millet.
8–5 corn. . . . . 8( )

9. Practically all of the Cuban sugar crop is sold in
9–1 the United States.
9–2 the West Indies.
9–3 Europe.
9–4 South America.
9–5 the British Isles. . . . . 9( )

10. Except in periods of war, most of the money spent by the Federal government comes from
10–1 the sale of savings bonds.
10–2 loans made by Federal Reserve banks.
10–3 the printing of paper money.
10–4 grants-in-aid paid by the states.
10–5 taxation. . . . . 10( )

11. Many Americans settled in Texas in the 1820's because
11–1 the North was becoming overpopulated.
11–2 Texas had recently joined the Union.
11–3 the Spanish priests had built many missions there.
11–4 they wanted to help Mexico fight Spain.
11–5 a generous land policy attracted settlers. . . . . 11(

12. Large and industrialized states often have better public schools than sparsely populated rural states because
12–1 they have no small schools.
12–2 city folks need more education than rural folks.
12–3 they are able to spend more money on education.
12–4 they do not complain about heavy taxes.
12–5 most rural children go to the city for an education. . . . . 12(

13. The United States has most recently granted independence to
13–1 the Hawaiian Islands.
13–2 Puerto Rico.
13–3 Cuba.
13–4 the Philippines.
13–5 Alaska. . . . . **13**(

Go on to the next pa

Which is most likely to result if the mechanical cotton picker is widely used in the South?
14–1 Farms will tend to get smaller.
14–2 Negroes in the North will return to the South.
14–3 The cost of picking cotton will decline.
14–4 The boll weevil will be exterminated.
14–5 The number of share croppers will increase. . . . . 14(   )

In which of the following would one look to find the height of the Andes Mountains?
15–1 An anthology
15–2 An encyclopedia
15–3 The card catalog
15–4 *Congressional Directory*
15–5 *Statesman's Yearbook* . . . . 15(   )

What is the common language of Europe today?
16–1 English
16–2 French
16–3 Spanish
16–4 Russian
16–5 There is no common language. . . 16(   )

San Francisco is a large city because it is
17–1 the capital of California.
17–2 near the California oil fields.
17–3 an old Spanish city.
17–4 a fine port.
17–5 near large deposits of coal and iron. 17(   )

The incandescent lamp was invented by
18–1 Thomas Edison.
18–2 Andrew Carnegie.
18–3 Harvey Firestone.
18–4 Ahura Mazda.
18–5 James Watt. . . . . 18(   )

Between the years 1910 and 1940 in the United States, a great decrease took place in the number of men working as
19–1 farmers.
19–2 physicians.
19–3 clergymen.
19–4 clerks.
19–5 policemen. . . . . 19(   )

Which of the following countries is *least* concerned with the problem of excess population?
20–1 India.
20–2 Italy.
20–3 Japan.
20–4 Germany.
20–5 Russia. . . . . 20(   )

South Africa has long been noted as the world's largest producer of
21–1 diamonds.
21–2 nickel.
21–3 iron.
21–4 uranium.
21–5 petroleum. . . . . 21(   )

22. In which area has a new Moslem state (Pakistan) been organized?
22–1 Northern Africa
22–2 Southern Africa
22–3 Southeast Europe
22–4 Mesopotamia
22–5 The Indian subcontinent . . . . . 22(   )

23. Which of the following events occurred in the Middle Ages?
23–1 Magellan's voyage around the world
23–2 The Crusades
23–3 The building of the pyramids
23–4 The building of the Parthenon
23–5 The birth of Jesus . . . . 23(   )

24. The Federal government entered into the housing business after World War II chiefly to
24–1 invest surplus funds.
24–2 gain votes in the next election.
24–3 aid the growth of large cities.
24–4 supply needed low-income housing.
24–5 keep the army engineers busy in peace time. . . . . 24(   )

25. The industry that has contributed most to the growth of Detroit is
25–1 coal mining.
25–2 petroleum refining.
25–3 textile manufacture.
25–4 clothing manufacture.
25–5 automobile manufacture. . . . . . 25(   )

26. Andrew Jackson was the champion of the
26–1 bankers.
26–2 common people.
26–3 aristocracy.
26–4 new industrial class.
26–5 plantation owners. . . . . 26(   )

27. During a depression, the income of which of the following groups will be *least* seriously affected?
27–1 Farmers
27–2 Factory workers
27–3 Owners of jewelry stores
27–4 Real estate salesmen
27–5 Persons living on pensions from the government . . . . 27(   )

28. The winter at Valley Forge is important in American history because
28–1 it was the darkest period of the Revolution.
28–2 it gave the American troops a needed rest.
28–3 it showed that the colonial soldiers and leaders would carry on in the face of great discouragement.
28–4 the British defeat there encouraged the Americans.
28–5 it was the turning point in the Revolution. . . . . 28(   )

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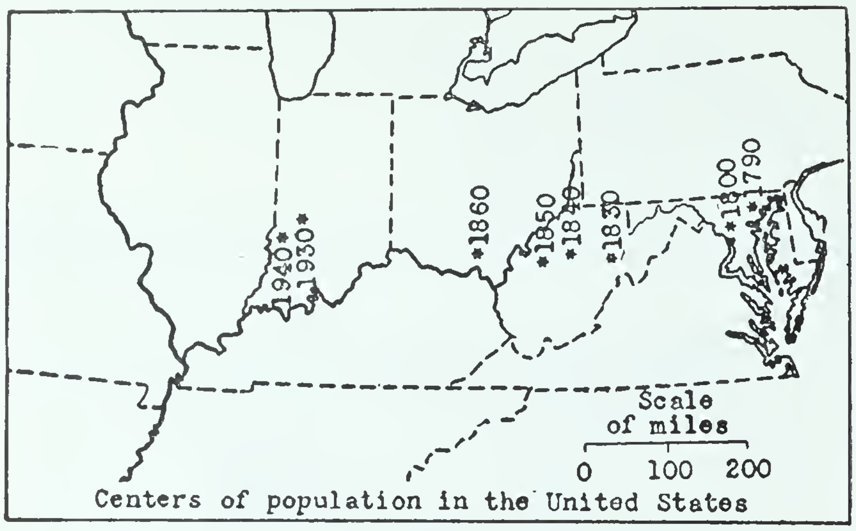


Centers of population in the United States

(Items 29 through 31 refer to the map above.)

29. According to the map how many miles west did the population center of the United States move between 1790 and 1940?
29–1 About 200 miles
29–2 About 300 miles
29–3 About 600 miles
29–4 About 1,000 miles
29–5 The map does not show how far. . 29( )

30. The map indicates that in 1940 the center of population was in
30–1 Illinois.
30–2 Indiana.
30–3 Ohio.
30–4 Kentucky.
30–5 West Virginia. . . . . 30( )

31. The map indicates that the most heavily populated section of the United States in 1940 was
31–1 north of the Ohio River.
31–2 south of the Ohio River.
31–3 west of the Mississippi River.
31–4 north of the Great Lakes.
31–5 east of Chesapeake Bay. . . . . . 31( )

- - - - - - - - - - -

32. All but one of the following figured in the gaining of Oregon for the United States. Which one did *not?*
32–1 Fur traders
32–2 Missionaries
32–3 Settlers
32–4 Lewis and Clark
32–5 A war with Great Britain . . . . 32( )

33. Which of these powers can be exercised by both Congress and the states?
33–1 To declare war
33–2 To coin money
33–3 To make treaties
33–4 To collect taxes
33–5 To tax exports . . . . 33( )

34. Which of the following was invented *first?*
34–1 Gunpowder
34–2 The wheel
34–3 The printing press
34–4 The screw driver
34–5 Paper . . . . 34)

35. The American Bill of Rights is found in the
35–1 Declaration of Independence.
35–2 main body of the Constitution.
35–3 amendments to the Constitution.
35–4 Preamble to the Constitution.
35–5 decisions of the Supreme Court. . . 35( )

36. Which of these was a part of Great Britain's "life line" to India?
36–1 Mediterranean Sea
36–2 Yellow Sea
36–3 English Channel
36–4 Panama Canal
36–5 Cape of Good Hope . . . . 36( )

37. The governor of a state has *no* power to
37–1 make appointments.
37–2 pardon criminals.
37–3 veto bills passed by the legislature.
37–4 call special sessions of the legislature.
37–5 tax imports from neighboring states. 37( )

38. There was little manufacturing in the American colonies because
38–1 the mother country placed restrictions on colonial manufactures.
38–2 more money could be made by farming.
38–3 England's factory workers would not come to America.
38–4 the majority of settlers lived on the frontier.
38–5 conditions of work in the colonial factories were very bad. . . . . 38( )

39. The chief port of the Malay Peninsula is
39–1 Gibraltar.
39–2 Port Said.
39–3 Singapore.
39–4 Hongkong.
39–5 Capetown. . . . . 39( )

40. One of the chief hopes for cheaper houses in the future is to
40–1 reduce the wages paid construction workers.
40–2 increase rents.
40–3 eliminate all building codes.
40–4 use more efficient methods of construction.
40–5 import lumber from South America. 40( )

Go on to the next

Which of the American possessions in the Pacific is nearest the United States?

41–1 Guam
41–2 Hawaiian Islands
41–3 Puerto Rico
41–4 Samoa
41–5 Virgin Islands . . . . 41(   )

Which of the following statements about the Declaration of Independence can be proved by looking at the Declaration itself?

42–1 It was signed by all the members of the Second Continental Congress.
42–2 All the members who signed did so on July 4, 1776.
42–3 John Hancock wrote his name in big, bold letters.
42–4 The authors signed first.
42–5 Some signers were not members of the Congress. . . . . 42(   )

The purpose of the TVA is to

43–1 administer veterans' affairs.
43–2 train officers for the maritime service.
43–3 supply home nursing care to low-income families.
43–4 work out a plan for the control of atomic energy.
43–5 provide for the integrated economic development of an entire region. . 43(   )

The only state in which 18-year old men and women may vote is

44–1 Wyoming.
44–2 Texas.
44–3 Georgia.
44–4 Michigan.
44–5 California. . . . . 44(   )

The Monroe Doctrine is

45–1 a series of laws passed by Congress.
45–2 an amendment to the Constitution.
45–3 a treaty with Great Britain.
45–4 a trade agreement with Canada.
45–5 a part of United States foreign policy. . . . . 45(   )

Of the Indians who lived in the territory now the United States, the most highly civilized were the

46–1 Iroquois.
46–2 Plains Indians.
46–3 Wampanoags.
46–4 Algonquins.
46–5 Pueblo Indians. . . . . 46(   )

Which of the following was the most important factor in the expansion of cattle raising in the United States?

47–1 The development of refrigeration
47–2 The outbreak of the hoof and mouth disease among herds in Argentina
47–3 The importation of breeding stock from India
47–4 The acquisition of the land of the Mexican cession
47–5 The increasing cost of fish . . . . 47(   )

48. If a business is incorporated, the general policies of the company are determined by the

48–1 union members.
48–2 board of directors.
48–3 manager.
48–4 chairman of the board of directors.
48–5 workers. . . . . 48(   )

49. Which of the following advances of primitive man occurred *last*?

49–1 Use of fire
49–2 Construction of boats
49–3 Development of picture writing
49–4 Use of iron tools
49–5 Planting of crops . . . . 49(   )

50. The formal power to declare war is held by

50–1 Congress.
50–2 the President.
50–3 the Senate.
50–4 the newly reorganized War Department.
50–5 the House of Representatives. . . . 50(   )

51. The oil field first developed in the United States is the

51–1 California field.
51–2 Texas field.
51–3 Illinois field.
51–4 Oklahoma field.
51–5 Pennsylvania field. . . . . 51(   )

52. A Federal law should be obeyed unless it is declared unconstitutional by

52–1 the President.
52–2 Congress.
52–3 the Supreme Court.
52–4 the Chief Justice.
52–5 the Court of Appeals. . . . . . . 52(   )

53. New York City passed Philadelphia in population and importance after

53–1 the building of the Erie Canal.
53–2 New York City was chosen the first capital.
53–3 a great fire swept Philadelphia.
53–4 the building of the National Road.
53–5 the building of the first railroad. . 53(   )

54. Where is the greatest lumber-producing area in the United States located?

54–1 The Pacific Northwest
54–2 California
54–3 The South
54–4 New England
54–5 Minnesota and Wisconsin . . . 54(   )

55. The southernmost city of the United States is

55–1 New Orleans.
55–2 Miami.
55–3 Los Angeles.
55–4 Galveston.
55–5 Key West. . . . . 55(   )

Go on to the next page.

56. Which of the following was *not* a leader in the Revolutionary War?

56–1 George Washington
56–2 Andrew Jackson
56–3 Nathanael Greene
56–4 Marquis de Lafayette
56–5 John Paul Jones . . . . 56(   )

57. The first land to be acquired by the United States after 1783 was

57–1 Florida.
57–2 Louisiana.
57–3 Maine.
57–4 the Northwest Territory.
57–5 Kentucky. . . . . 57(   )

58. In the average American community, decisions on school policy lie chiefly in the hands of

58–1 the United States Office of Education.
58–2 the state department of education.
58–3 the Parent-Teacher Association.
58–4 the town or city executive body.
58–5 a locally elected school board. . . . 58(   )

59. From which of the following can the most reliable information on the homes of the ancient Romans be obtained?

59–1 The writings of Julius Caesar
59–2 Cicero's orations
59–3 The paintings of early artists
59–4 The excavations at Pompeii
59–5 The letters of Roman soldiers . . . 59(   )

60. Which of the following was *not* included in the Northern plan of attack during the Civil War?

60–1 The opening up of the Mississippi
60–2 Sherman's march to Atlanta
60–3 The blockade of the South
60–4 An attack on Baltimore
60–5 The capture of Richmond . . . . 60(   )

61. The Ukraine is most important to Russia because it

61–1 has great deposits of coal and iron.
61–2 contains Russia's most important port.
61–3 is "the bread basket of the U.S.S.R."
61–4 is a natural defense against Germany.
61–5 contains the capital city of the U.S.S.R. . . . . 61(   )

62. The Tariff of 1816 was popular in New England because it

62–1 protected the wheat farmer.
62–2 made manufactured goods cost less.
62–3 raised great amounts of money for the state governments.
62–4 protected American manufacturers.
62–5 represented a victory over the South. . . . . 62(   )

63. The form of territorial government most commonly used by the United States was first laid down in

63–1 the Ordinance of 1787.
63–2 the Constitution of the United States.
63–3 laws passed by the first Congress under the Constitution.
63–4 the treaty of 1783 with Great Britain.
63–5 a proclamation by President Washington. . . . . 63(   )

64. Which of the following rights and privileges is *not* guaranteed to Americans by the Bill of Rights?

64–1 To worship as they choose
64–2 To express their opinions
64–3 To demand a speedy trial
64–4 To assemble peacefully
64–5 To earn a living . . . . 64(   )

65. By the end of the Revolutionary War, the white people living beyond the Appalachian Mountains numbered

65–1 a few score.
65–2 a few hundred.
65–3 a few thousand.
65–4 several hundred thousand.
65–5 almost a million. . . . . 65(

66. Which of the following was a famous Mormon leader?

66–1 Marcus Whitman
66–2 John Jacob Astor
66–3 Kit Carson
66–4 Brigham Young
66–5 Manuel Lisa . . . . 66(   )

67. In general, unions have done most to help

67–1 "white collar" workers.
67–2 skilled labor.
67–3 agricultural workers.
67–4 women workers.
67–5 management. . . . . 67(   )

68. Christ was born during the reign of

68–1 Constantine.
68–2 Nero.
68–3 Augustus.
68–4 Julius Caesar.
68–5 Alexander. . . . . 68(   )

69. In the 1780's the average American

69–1 felt loyal to Great Britain.
69–2 felt more loyal to his state than to the nation.
69–3 felt more loyal to his town than to the state.
69–4 felt more loyal to his employer than to the state.
69–5 had no particular loyalty. . . . . 69(   )

Go on to the next p

The Corinthian column was originated by the

70–1 Egyptians.
70–2 Phoenicians.
70–3 Babylonians.
70–4 Greeks.
70–5 Romans. . . . . 70(   )

The United States built the Panama Canal *chiefly* to

71–1 protect the country's interests in both the Atlantic Ocean and the Pacific Ocean.
71–2 give unemployed workers an income.
71–3 defend the country against encirclement in time of war.
71–4 develop a gateway to South America.
71–5 keep France from building it. . . . 71(   )

The national capital of Canada is

72–1 Vancouver.
72–2 Montreal.
72–3 Ottawa.
72–4 Toronto.
72–5 Quebec. . . . . 72(   )

73. Which of these inventions was most helpful to the settlers of the West in the 1880's?

73–1 The cotton gin
73–2 The telephone
73–3 The reaper
73–4 The tractor
73–5 The spinning jenny . . . . 73(   )

74. A territory of the United States is represented in Congress by

74–1 two senators.
74–2 the governor of the territory.
74–3 a committee appointed by the President.
74–4 a delegate who has no vote.
74–5 one representative for each 50,000 population. . . . . 74(   )

75. The first example of representative government in America was the

75–1 Mayflower Compact.
75–2 government under the Constitution of the United States.
75–3 New England Confederation.
75–4 organization of the Virginia House of Burgesses.
75–5 government under the Articles of Confederation. . . . . 75(   )

Go on to the next part.

Number wrong	0–2	3–6	7–10	11–14	15–18	19–22	23–26	27–30	31–34	35–38	39–42	43–46	47–50	51–54	55–58	59–+
Amount to be subtracted	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

Number right________

Subtract________
(See table at left)

Raw Score on Part I = Difference________

PART II

TERMS AND CONCEPTS

(15 minutes)

Directions: Continue as in the preceding part.

1. Which of the following is known as the "Lone Star State"?
   1–1 Texas
   1–2 Michigan
   1–3 Massachusetts
   1–4 California
   1–5 Florida . . . . 1(   )

2. A "forty-niner" is
   2–1 a Senator who approves of the admission of Hawaii as the 49th state.
   2–2 an individual who voted for the first time in 1949.
   2–3 a nickname for an organization of veterans of World War II.
   2–4 a person who went to California at the time of the gold rush.
   2–5 a high-powered plane. . . . . 2(   )

3. Which of the following is a retail store?
   3–1 A grocer's shop
   3–2 A bank
   3–3 A garage
   3–4 A shoe repair shop
   3–5 A lawyer's office . . . . 3(   )

4. A "greenback" is a nickname for
   4–1 a citizen of Vermont.
   4–2 a member of a subversive organization.
   4–3 a kind of paper money.
   4–4 a heavily forested region.
   4–5 an allotment check received from the Federal government. . . . . 4(   )

5. A period of a hundred years is called a
   5–1 decade.
   5–2 score.
   5–3 century.
   5–4 generation.
   5–5 millennium. . . . . 5(   )

6. The term "humidity" refers to the
   6–1 fertility of the soil.
   6–2 average annual temperature.
   6–3 amount of rainfall during the year.
   6–4 amount of moisture in the air.
   6–5 amount of humus in the soil. . . . . 6(   )

7. Which of the following states is located in the Corn Belt?
   7–1 Iowa
   7–2 Pennsylvania
   7–3 Minnesota
   7–4 Tennessee
   7–5 New Jersey . . . . 7(   )

8. "Ghost towns" are towns
   8–1 where a mysterious crime has been committed.
   8–2 which have no electric light system.
   8–3 which are covered with snow most of the year.
   8–4 from which practically all the population has moved.
   8–5 which in the fall are covered by the mists from the ocean. . . . . 8(

9. The Mason-Dixon Line is
   9–1 the traditional boundary dividing the North and the South.
   9–2 the northern boundary of Virginia.
   9–3 an imaginary line dividing New England and the Middle States.
   9–4 the southern boundary of Missouri.
   9–5 a famous railroad. . . . . 9(

10. The inauguration of a President refers to the time when he
    10–1 turns over the office to his successor.
    10–2 campaigns for office.
    10–3 takes the oath of office.
    10–4 gives his annual message to Congress.
    10–5 seeks re-election. . . . . 10(

11. The term "red tape" is commonly used to denote
    11–1 the official seal on diplomatic documents.
    11–2 the broad band a foreign official often wears across his chest.
    11–3 the ribbon which is cut when a new bridge is opened.
    11–4 service ribbons worn by soldiers.
    11–5 official routine which is excessively slow and complex. . . . . 11(

12. A story spread by one nation to influence the thoughts and actions of another nation is called
    12–1 nationalism.
    12–2 propaganda.
    12–3 diplomacy.
    12–4 fascism.
    12–5 public relations. . . . . 12(

13. The government of which of these countries is a dictatorship?
    13–1 Switzerland
    13–2 Sweden
    13–3 Belgium
    13–4 England
    13–5 Russia . . . . 13(

Go on to the next pa

A monsoon is
14–1 an Oriental fruit.
14–2 a business organization.
14–3 a form of government.
14–4 a seasonal wind.
14–5 the exclusive control of some article. 14( )

The purpose of contour plowing is to
15–1 make the best use of tractors.
15–2 plow around trees and stones rather than to get rid of them.
15–3 prevent the rapid run-off of water which occurs when furrows run down hill.
15–4 avoid plowing into the subsoil.
15–5 get rid of hills in order to have flat fields. . . . . 15( )

Anthracite is a kind of
16–1 coal.
16–2 clover.
16–3 spice.
16–4 disease.
16–5 metal. . . . . 16( )

"To vote a straight ticket" means to
17–1 have only one party to vote for, as in Russia.
17–2 sell one's vote.
17–3 vote for all the candidates of one party.
17–4 vote in the primaries.
17–5 encourage one's neighbor to vote. . 17( )

Deserts are caused by
18–1 the presence of sand.
18–2 high temperatures and cloudless skies.
18–3 winds blowing inland from the ocean.
18–4 dry-farming.
18–5 inadequate rainfall and rapid evaporation. . . . . 18( )

The administration of a President is his
19–1 control over Congress.
19–2 annual budget.
19–3 Cabinet.
19–4 "official family."
19–5 term of office. . . . . 19( )

A city is evacuated when
20–1 it is surrounded by an enemy.
20–2 its population is removed.
20–3 it is bombed.
20–4 it falls into decay.
20–5 it is put under martial law. . . . . 20( )

21. The clipper ships were famous for
21–1 being able to navigate in shallow rivers.
21–2 being very speedy.
21–3 carrying very large cargoes.
21–4 being the first ships built of iron.
21–5 introducing the Diesel engine. . . . 21( )

22. A privateer is
22–1 an armed private vessel commissioned to cruise against the commerce or war vessels of the enemy.
22–2 a newspaper which reflects the ideas of a single individual.
22–3 a soldier hired for service in an army not of his own country.
22–4 a record of secret diplomatic action.
22–5 an agent engaged in counter-intelligence work. . . . . 22( )

23. To refine petroleum means to
23–1 add anti-knock fluid.
23–2 carry it to distributing centers in pipes.
23–3 make it into crude oil.
23–4 store it in huge tanks.
23–5 break it down into kerosene, gasoline, etc. . . . . 23( )

24. The symbol of the elephant is commonly used to indicate the
24–1 Democratic Party.
24–2 Republican Party.
24–3 Socialist Party.
24–4 Labor Party.
24–5 Prohibition Party. . . . . 24( )

25. Which of the following is an example of private enterprise?
25–1 A postoffice
25–2 A municipal hospital
25–3 A department store
25–4 A government housing project
25–5 A city-owned water supply system . 25( )

26. Which of the following is a good cover crop?
26–1 Corn
26–2 Cotton
26–3 Wheat
26–4 Clover
26–5 Onions . . . . 26( )

27. The "underground railroad" is a name for
27–1 a railroad through the Swiss Alps.
27–2 the railroad in a mine.
27–3 an attempt to force legislation through Congress.
27–4 secret assistance given to fugitive slaves.
27–5 a new type of electric railroad. . . 27( )

Go on to the next page.

28. Which of these cities is known as the "Pittsburgh of the South"?

28–1 Atlanta
28–2 Savannah
28–3 Birmingham
28–4 Memphis
28–5 New Orleans . . . . 28( )

29. The expression "not worth a continental" means that the thing so described is

29–1 common but precious.
29–2 scarce and precious.
29–3 worth very little.
29–4 not worth fighting a war to maintain.
29–5 a relic from our colonial days. . . . 29( )

30. To amend the Constitution is to

30–1 explain its meaning.
30–2 enforce its laws.
30–3 change its provisions.
30–4 write a new one.
30–5 have engraved copies made. . . . 30( )

31. Lobbying is

31–1 a method of voting on bills.
31–2 a political discussion in Congress.
31–3 a sharp debate.
31–4 an attempt to influence the vote of members of Congress.
31–5 a roll call in Congress. . . . . . . 31( )

32. The term "indemnity" is most commonly used to mean

32–1 money paid for injury or damages.
32–2 the identification of criminals.
32–3 a tax on imports.
32–4 the freeing of an individual from certain duties.
32–5 the gaining of territory outside a nation's boundaries. . . . . 32( )

33. A guerrilla is

33–1 a fortified place in which troops are quartered.
33–2 a collection of ships.
33–3 an individual who carries on irregular warfare.
33–4 an act of tyranny.
33–5 a complaint. . . . . 33( )

34. A "share cropper" is a farmer who

34–1 pays his rent with a percentage of his year's produce.
34–2 belongs to a farmers' cooperative group.
34–3 sells his products in a farmers' market.
34–4 migrates from state to state with the harvesting seasons.
34–5 divides his time between farming and industry. . . . . 34( )

35. The 49th parallel marks

35–1 a section of the northern boundary of the United States.
35–2 the Tropic of Cancer.
35–3 the southern boundary of the Arctic Circle.
35–4 Alaska's southern boundary.
35–5 the northern boundary of the Corn Belt. . . . . 35( )

36. "Jim Crow" laws are an example of

36–1 government aid to farmers.
36–2 discrimination against Negroes.
36–3 legislation to provide wild-life sanctuaries.
36–4 conservation legislation.
36–5 the Anglo-Saxon common law. . . 36( )

37. To cede means to

37–1 leave the Union.
37–2 transfer territory from one nation to another.
37–3 issue a formal document.
37–4 express dissatisfaction.
37–5 take an official count of the population. . . . . 37(

38. The term "Solid South" is used with reference to the

38–1 Pan-American Union.
38–2 independent government known as the Confederate States of America.
38–3 opposition of Southern whites to Negro suffrage.
38–4 high proportion of Southern farmers who own their land.
38–5 dominant position of the Democratic Party in the South. . . . . 38(

39. The term "boycott" means to

39–1 employ under-age workers.
39–2 refuse employment to union workers.
39–3 campaign actively in a political election.
39–4 refuse to trade with an individual or firm.
39–5 revolt against the government. . . 39(

40. When Jefferson used the term "democracy," he meant all of the following *except*

40–1 local self government.
40–2 education for the people.
40–3 civil liberties.
40–4 strong central government.
40–5 majority rule. . . . . 40(

41. Citrus fruits might best be raised in which of the following places?

41–1 The lands bordering on the Baltic Sea
41–2 The Scandinavian Peninsula
41–3 The Swiss Alps
41–4 The Mediterranean Basin
41–5 Northern Ireland . . . . 41(

Go on to the next pa

Piedmont plains are

42–1 the plains of the Middle West.
42–2 plateaus.
42–3 coastal plains.
42–4 plains at the foot of mountains.
42–5 the Argentine wheat plains. . . 42(   )

In a discussion concerning the Presidency, the term "dark horse" is used correctly in describing any

43–1 Southern Democrat who runs for the office.
43–2 candidate who is elected by a narrow margin.
43–3 candidate nominated by a minor party.
43–4 little-known candidate for the nomination.
43–5 leader who sponsors the candidacy of another man. . . . . 43(   )

44. A special privilege granted by public authority to an individual or a corporation is called

44–1 a franchise.
44–2 a writ of mandamus.
44–3 a subpoena.
44–4 an ex post facto law.
44–5 collective bargaining. . . . . . . 44(   )

45. Diversified farming means

45–1 dairy farming.
45–2 one-crop farming.
45–3 farming on a huge ranch.
45–4 raising several crops.
45–5 poultry raising. . . . . 45(   )

Go on to the next part.

Number wrong	0 | 2	3 | 6	7 | 10	11 | 14	15 | 18	19 | 22	23 | 26	27 | 30	31 | 34	35 | +
Amount to be subtracted	0	1	2	3	4	5	6	7	8	9

Number right________

Subtract________
(See table at left)

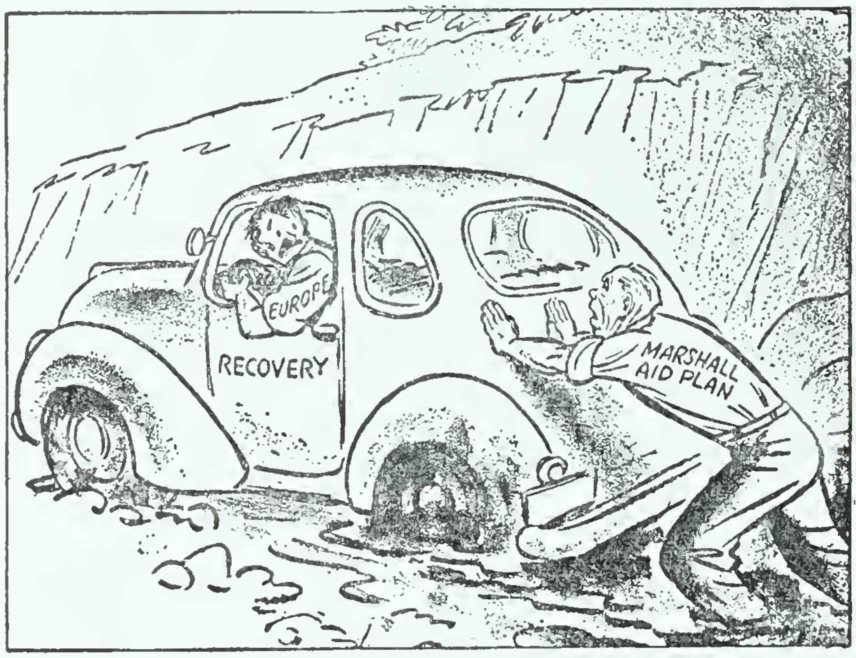
Raw Score on Part II = Difference________

PART III

COMPREHENSION AND INTERPRETATION

(25 minutes)

Directions: This part consists of selections taken from newspapers, books, and magazines. Following each selecti are several items concerning it. **Read or examine the selection carefully first,** and then decide on the basis of it wh one of the choices given after each item best completes the statement or answers the question. If you cannot deci you may go back to the selection. After you have decided on the answer to an item, put its **number** in the parenthes at the right as you did in Parts I and II.



"Okay, now step on the starter!"

1. The cartoon above was probably drawn to show that
   - 1–1 automobile production in Europe declined after World War II.
   - 1–2 European-made cars were less powerful than American-made cars.
   - 1–3 the United States had lost hope for Europe's recovery.
   - 1–4 the United States was willing to help Europe, if Europe was willing to help itself.
   - 1–5 conditions in Europe were worse in 1947 than they had been during World War II. . . . . 1(   )

2. What was the cartoonist trying to indicate by showing the wheels deep in the mud?
   - 2–1 Europe had had a very rainy season during the past year.
   - 2–2 Recovery would not be easy for Europe.
   - 2–3 Roads in Europe had fallen into disrepair.
   - 2–4 The Marshall Plan for European recovery could not succeed.
   - 2–5 Europeans were unwilling to cooperate with Marshall. . . . . 2(   )

3. The automobile in the cartoon symbolizes the recovery of
   - 3–1 European military strength.
   - 3–2 European production.
   - 3–3 European tourist trade.
   - 3–4 European tariffs.
   - 3–5 a United States of Europe. . . . . . 3(   )

According to the story told, certain officials at a we attended political meeting were trying to push their w through the crowds surrounding the platform.

"Make way there," they shouted. "We are the repr sentatives of the people."

"Make way yourselves," came the quick retort. "V *are* the people."

4. What is the point of this story?
   - 4–1 Seats should always be saved on the platform for the officials.
   - 4–2 The representatives of the people were poor officials.
   - 4–3 The people did not like their officials.
   - 4–4 The officials should be elected, not appointed.
   - 4–5 Officials are the servants, not the masters, of the people. . . . . 4(

Democracy is the ideal organization for a country peace. It permits each citizen to follow his own ben to retain the reward of his labor or enterprise, to pursu as far as practicable, his happiness or his destiny in h own way. Such a system, by allowing within a fram work of law and order the fullest expression of the ind vidual, also does most to encourage the life of the natic as a whole. Fascism, on the contrary, is the natur organization of a nation whose leaders seek to increas their power by war or the threat of war. The very pu pose of fascism, indeed, is in a sense to turn a who country into an armed camp, to make of the who population essentially an army for intimidation and ag gression in which each citizen must take his orders an perform the special role demanded of him.

5. In a democracy, as defined above, each citizen
   - 5–1 may do just as he pleases.
   - 5–2 is told what to do.
   - 5–3 refuses to go to war.
   - 5–4 is guaranteed employment.
   - 5–5 is "free" within certain limits placed upon him by law. . . . . 5(

6. The leaders of a fascistic country are likely to be *most* interested in
   - 6–1 strengthening their own prestige.
   - 6–2 allowing the citizens to make their own laws.
   - 6–3 making the citizens happy and prosperous.
   - 6–4 building up good will among nations.
   - 6–5 increasing the cultural benefits for the citizens. . . . . 6(

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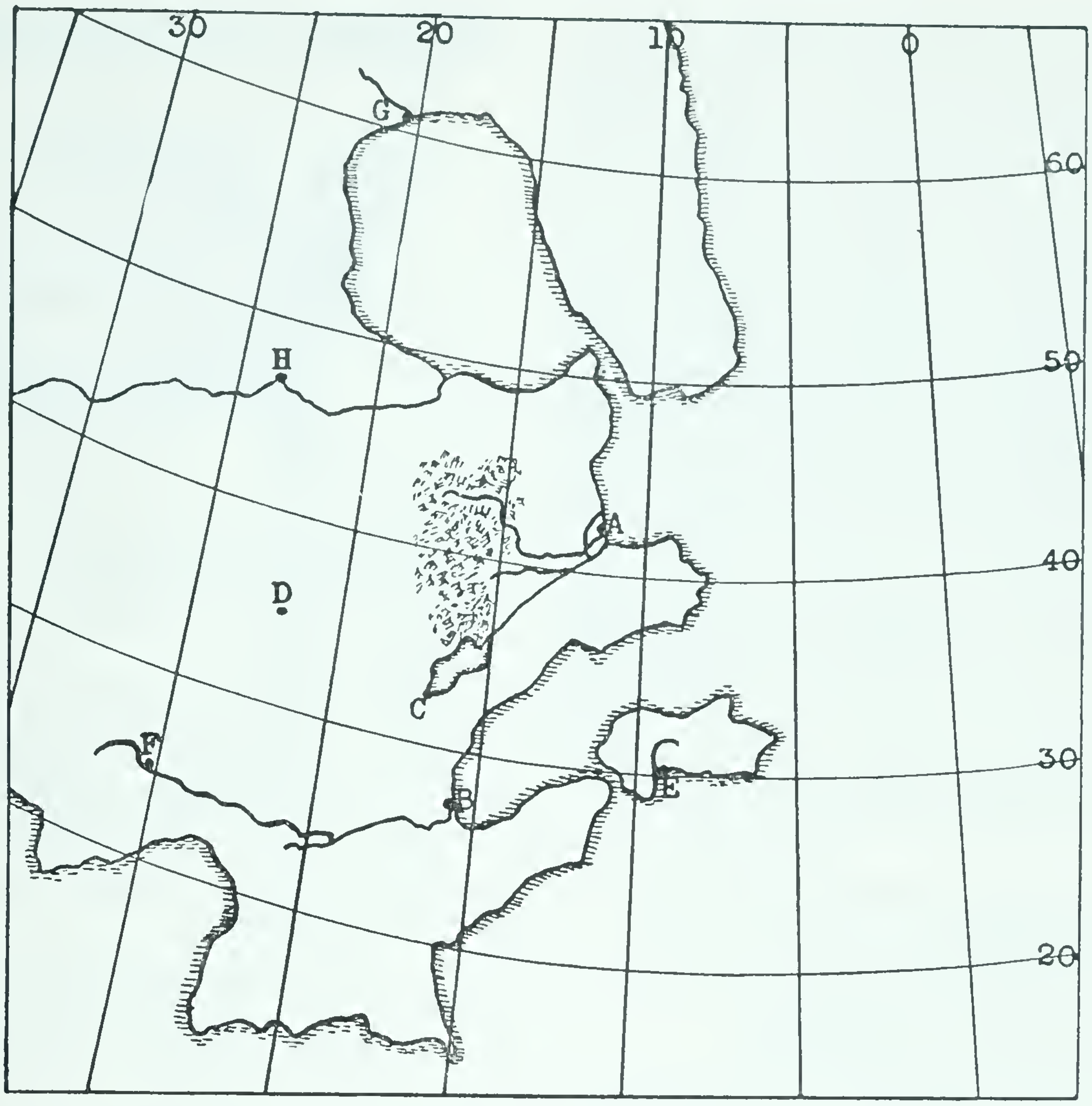

In the imaginary country shown above, city A is located
7–1 at the source of a river.
7–2 at the foot of a mountain.
7–3 on an isthmus.
7–4 on a plateau.
7–5 on a delta. . . . . 7(   )

What is the longitude at city D?
8–1 18 degrees West
8–2 22 degrees West
8–3 35 degrees North
8–4 38 degrees East
8–5 45 degrees North . . . . 8(   )

When it is winter at city G, what season is it at city C?
9–1 Summer
9–2 Fall
9–3 Winter
9–4 Spring
9–5 Rainy season . . . . 9(   )

Which city is located on the river which probably flows most swiftly during the first half of its course?
10–1 City A
10–2 City B
10–3 City C
10–4 City E
10–5 City H . . . . 10(   )

11. What is the latitude at city H?
11–1 24 degrees West
11–2 34 degrees East
11–3 36 degrees West
11–4 47 degrees North
11–5 55 degrees South . . . . 11(   )

12. What product is probably the most important export at seaport G?
12–1 Rice
12–2 Fruit
12–3 Lumber
12–4 Cotton
12–5 Rubber . . . . 12(   )

13. In what general direction does the river on which cities B and F are located flow?
13–1 East
13–2 North
13–3 South
13–4 Southeast
13–5 West . . . . 13(   )

14. If enough territory were shown to include the equator, where on this map would the equator be located?
14–1 Top
14–2 Bottom
14–3 Middle
14–4 Right
14–5 Left . . . . 14(   )

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The Great Plains have at least one reliable feature: wind. Temperatures may shoot up or drop by as much as 30 degrees in the passing of an hour. Rainfall may vary. Crops may produce bountiful yields one season and fail miserably the next. But the wind blows on—sometimes 8 to 16 miles per hour, sometimes 40, 50, and 60 miles per hour.

During the mid-1930's these winds blew across a drought-stricken land, a boom-and-bust empire 1,300 miles long and 200 to 700 miles wide, where crops withered away, slat-thin cattle were shot for lack of feed, and a million farmers were headed toward bankruptcy and loss of land. Experts considered the parched soil and rolling black clouds of dust as signs of the coming of the desert. Many thousands left their land. Many of those who stayed—and most of them did—were on some form of relief.

In the 1940's the wind still blew across the Plains—but nothing else was the same. For Plainsmen made their most remarkable and profitable comeback and rode the crest of a fair weather boom which made the Klondike look like small stuff. The countryside was sleek and fat from 7 and 8 years of above-average rainfall. Farmers harvested one record-breaking crop after another.

15. According to the writer, in the late 1930's the farmers of the Plains

15–1 sold their crops for high prices.
15–2 bought more land.
15–3 were headed toward bankruptcy.
15–4 planted trees to stop the winds.
15–5 began to grow new crops. . . . . . 15(   )

16. In the late 1930's the experts thought that the

16–1 land would become a desert.
16–2 farmers would have to raise different crops.
16–3 winds would stop blowing sooner or later.
16–4 rainfall would increase.
16–5 dust was not harmful. . . . . . . 16(   )

17. Which of the following accounts for the fact that the situation changed after a few years?

17–1 The farmers saved their money.
17–2 The winds stopped blowing.
17–3 Government relief helped the farmers to re-establish themselves.
17–4 The price of wheat reached an all-time high.
17–5 The area had a number of years of above-average rainfall. . . . . . . 17(   )

18. Why is reference made to the Klondike?

18–1 It is a new crop now being profitably produced by the Plainsmen.
18–2 Wealth was won there rapidly in a gold rush.
18–3 Artificial rain has recently been produced there.
18–4 It is a famous valley where the farmers grew wealthy.
18–5 It is a range of mountains to the west of the Plains. . . . . 18(   )

19. Which of the following *best* expresses the main thought of this passage?

19–1 The winds and the rains control the destinies of the Plains farmers.
19–2 The Middle West may at some future time become a desert.
19–3 The winds always blow in the Plains area.
19–4 The Plainsmen have learned their lesson.
19–5 The Plainsmen are riding the crest of a fair weather boom. . . . . . 19(

20. On the basis of the facts presented in the passage, what would appear to be the best policy for the future?

20–1 Have government relief always available.
20–2 Give up the raising of cattle.
20–3 Introduce a kind of farming which will not suffer from high winds and lack of rain.
20–4 Move to other sections of the country.
20–5 Organize farmers' cooperative groups. . . . . 20(

- - - - - - - - - - -

(*Items 21 and 22 refer to the verse below, which is inscrib on the base of the Statue of Liberty.*)

"Give me your tired, your poor,
Your huddled masses yearning to breathe free,
The wretched refuse of your teeming shore,
Send these, the homeless, tempest-tost to me:
I lift my lamp beside the golden door."

21. "Yearning to breathe free" means that the immigrants

21–1 want to breathe the pure air of America.
21–2 desire to live in a free country.
21–3 are susceptible to lung and throat diseases.
21–4 are tired of breathing the dust and smoke-filled air of European cities.
21–5 fear the possibility of unjust imprisonment. . . . . 21(

22. What is meant by "the golden door"?

22–1 The high wages paid in America
22–2 A passport to America
22–3 The gateway to all the privileges and opportunities in the United States
22–4 The high standard of living in the United States
22–5 The large number of sunny days in the United States . . . . 22(

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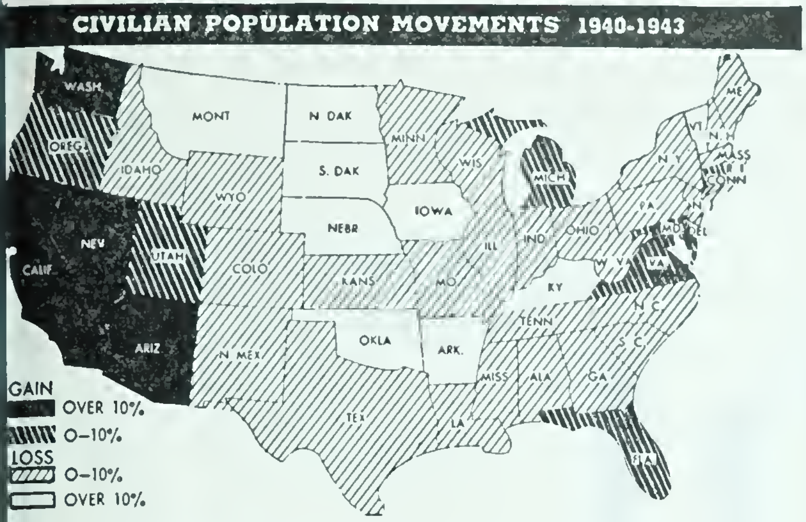


According to the map above, which state had the largest per cent loss in population in 1943?

23–1 Montana
23–2 Texas
23–3 California
23–4 Iowa
23–5 Cannot be determined from the map . . . . 23( )

Which states gained more than 10 per cent in population from 1940 through 1943?

24–1 Utah, Wyoming, Colorado, and Michigan
24–2 Florida, Louisiana, California, and Connecticut
24–3 Washington, Oregon, Idaho, and Iowa
24–4 California, Nevada, Arizona, and Washington
24–5 Delaware, Alabama, Oklahoma, and Texas . . . . 24( )

Which state made the greatest gain in number of people between 1940 and 1943?

25–1 Nevada
25–2 Arizona
25–3 Washington
25–4 Florida
25–5 Cannot be determined from the map . . . . 25( )

– – – – – – – – – – –

No business can stand alone and prosper. Suppose, for illustration, that a great railroad strike occurs. Thousands of railway workers quit their jobs and go to their homes. Regardless of who is at fault in the dispute, the business of the whole nation suffers. The farmer's apples rot in his orchards; the coal collects in huge piles near the mines; the logs remain in the forests; the manufacturer cannot get his raw materials; the corner grocer cannot replenish his stock; and the housewife cannot purchase supplies for her family. As the strike lengthens, the banks become unable to meet the heavy withdrawals of their depositors, and are forced to request the farmer, the manufacturer, the railroad company, the merchant, and other borrowers to pay their loans. This is a very serious condition. Every business is dependent for its success upon every other business, and the workers are dependent for their welfare on the success of the business in which they are employed. Good citizenship demands that all business organizations shall cooperate for the welfare of the community.

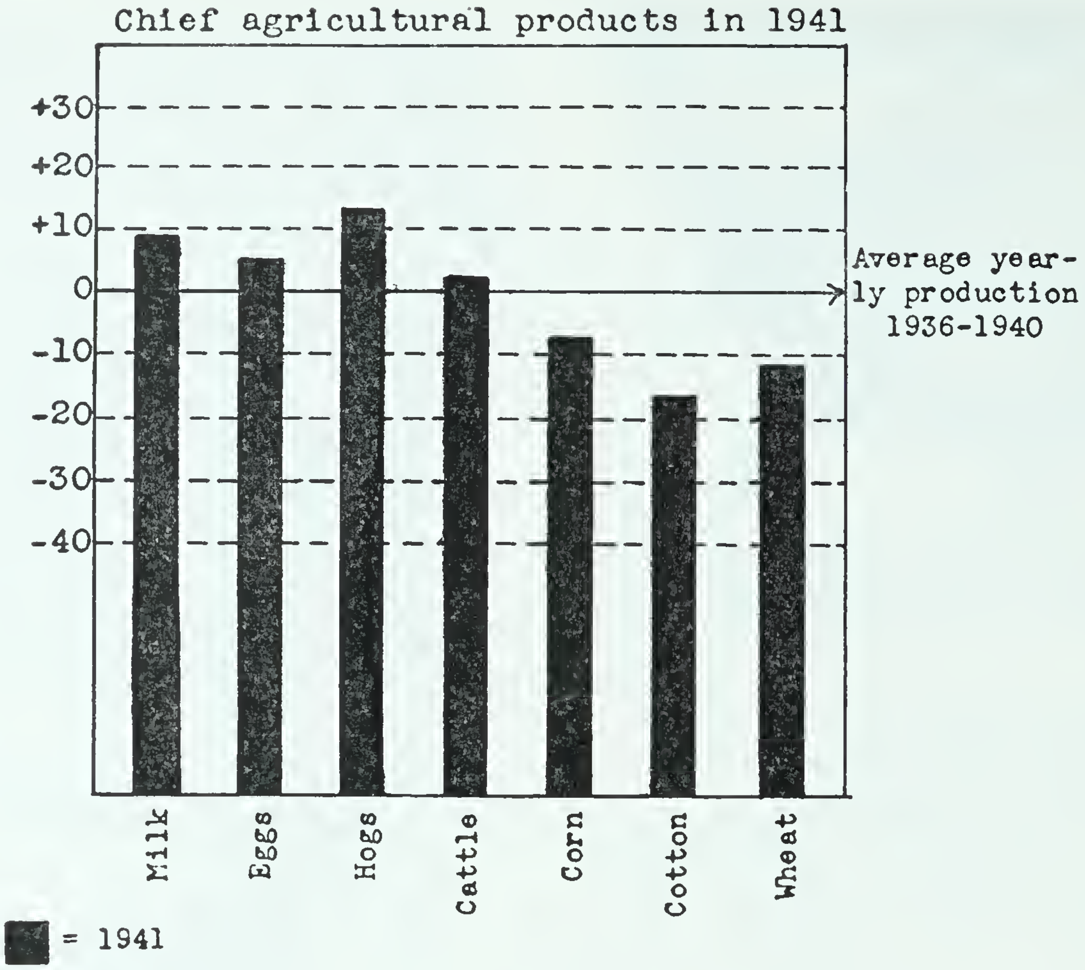
26. According to the passage above, which of these groups suffers most when a great strike occurs?

26–1 All the people
26–2 Only the company against whom the strike is directed
26–3 Only the firms who sell materials to the company against whom the strike is directed
26–4 Only the people who sell the company's product
26–5 Only the banks . . . . 26( )

27. Which of the following methods of dealing with labor disputes would the writer of this passage be likely to support?

27–1 Prohibit the organization of labor unions.
27–2 Make strikes illegal by Congressional action.
27–3 Convert all private businesses into cooperatives owned by the employees.
27–4 Put a time limit on the duration of strikes.
27–5 Convince both management and labor that the nation's welfare depends on their ability to cooperate with each other. . . . . 27( )

– – – – – – – – – – –



(Figures at left show percentage of increase or decrease from 1936–40 averages.)

28. According to the graph above, the production of milk in 1941 represented how great an increase over the average yearly production of milk from 1936 to 1940?
28–1 20 per cent
28–2 18 per cent
28–3 10 per cent
28–4 9 per cent
28–5 5 per cent . . . . 28(   )

29. Which of the following fell farthest below the 1936–1940 yearly production?
29–1 Cotton
29–2 Wheat
29–3 Hogs
29–4 Cattle
29–5 Corn . . . . 29(   )

30. Which of the following showed the greatest gain over the 1936–1940 yearly production?
30–1 Cotton
30–2 Wheat
30–3 Milk
30–4 Hogs
30–5 Cattle . . . . 30(

If you finish before the time is up, you may go back and work on any part.

Number wrong	0 | 2	3 | 6	7 | 10	11 | 14	15 | 18	19 | 22	23 | +
Amount to be subtracted	0	1	2	3	4	5	6

Number right________

Subtract________
(See table at left)

Raw Score on Part III = Difference________

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